PUBLIC PERCEPTION OF RENEWABLE ENERGY IN INDONESIA: IMPLICATION FOR COMMUNICATION STRATEGY

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ABSTRACT

In this study, the public's perception of renewable energy in Indonesia is examined, along with its communication implications. A mix method was employed in this study, which is a research strategy that blends qualitative and quantitative research. The object in this research is the Indonesian Society. From questionnaire that was distributed through the random selection, research result revealed quite different levels of perception about renewable energy concepts. To be most effective, communications strategy should be designed to answer the questions that each individual has, building upon the level of knowledge as one of perception aspect that already exists.

Keywords : Renewable Energy; Public Perception; Communication

ABSTRAK

Penelitian ini berfokus pada kajian Persepsi Publik terhadap Energi terbarukan di Indonesia dan Implikasinya terhadap Komunikasi. Metodologi penelitian ini adalah pendekatan campuran yang menggabungkan penelitian kualitatif dan kuantitatif. Objek dalam penelitian ini adalah masyarakat Indonesia. Melalui kuesioner yang disebarkan melalui seleksi acak, hasil penelitian mengungkapkan tingkat persepsi yang cukup berbeda tentang konsep energi terbarukan. Agar jauh lebih efektif, strategi komunikasi harus dirancang untuk menjawab pertanyaan yang dimiliki setiap individu yang dibentuk berdasarkan tingkat pengetahuan sebagai salah satu aspek persepsi yang sudah ada.

Kata Kunci : Energi Terbarukan; Persepsi Publik; Komunikasi

INTRODUCTION

Indonesia is a rich country in natural resources and a big player in the world's economic energy as well (Rochwulaningsih et al., 2019) But the concrete, while Indonesia has such large reserves for fossil energy, since 20 years Indonesia has also listed as the largest oil importer country. The first of Indonesia Energi Trilema's three primary points is Energy Security, which is described as a stable situation and an adequate supply of energy at a competitive price. This point has ramifications for both short-term and long-term energy security (Heffron et al., 2022).

The second of the Indonesia Energy Trilemma that is Energy Poverty, where there are still many regions in Indonesia, especially outside Java and Bali, which are still constrained by access to energy, even though one of the government's 2020 energy program is to realizing a Bright Indonesia - Smart Indonesia (Setyowati, 2020). Especially with the Covid 19 pandemic, the Ministry of Education and Culture has implemented a distance learning program, where students throughout Indonesia must study from home using the internet (Lase et al., 2022). In some areas this cannot be implemented, because they are still not accessible to electricity.

The third trilemma is the population suffers from the adverse environmental, economic and social impacts of climate change (Fünfgeld, 2021). According to (Heffron et al., 2022) Climate change that occurs can cause flooding, soil infertility and also cause imbalances in the forest, which ultimately has an impact on Food Security and other impacts.

Based official government data shows that the potential of Indonesia's renewable energy sources reaches 441.7 GW but only 9.07 GW or 2% has been utilized (Hernandez & Prakoso, 2021). To achieve this effort, the government has set a vision for optimizing the use of EBT. For instance, the government has established that the share of renewable energy in the country's energy mix must be at least 23% by 2025 by Government Regulation of the Republic of Indonesia Number 79 of 2014 concerning National Energy Policy (Azhar et al., 2018). EBT in Indonesia only made up 11,51% of the country's overall energy consumption in 2020. It might be claimed that it is quite slow and not optimum (Deendarlianto et al., 2020).

Numerous issues, such as Indonesia's heavy reliance on fossil fuels and the unfeasible cost of renewable energy, contribute to the country's delayed development of renewable energy (Arutyunov & Lisichkin, 2017). Similarly, a number of earlier studies claimed that fuel-based energy, particularly fuel oil and coal, continues to dominate Indonesia's energy consumption (Jaelani et al., 2017). Additionally, according to (Parker et al., 2018), public views itself continue to hamper Indonesians' awareness of and support for the implementation of renewable energy. The community continues to support pro-fossil energy policies because of the public opinion that the energy supply must be affordable, which is still rising. The public has so failed to fulfill its responsibility of pressuring the government to implement an energy transition. For this

reason, the successful implementation of a large government program must of course be supported by public knowledge about this matter; public communication plays a very important role.

This is reinforced by the statement of Gong et al., (2020) that there may be several factors that could cause the development of ET to be not optimal, one of which is the communication factor. Policy communication on ET exists but has not been effective. Alternatively, the ET policy-making process is not based on good organizational communication or after the ET policy is structured it is not well communicated. Organizational communication is key in the public policy construction process regarding ET. Meanwhile, in order to develop an appropriate communication strategy, prior research is needed regarding public perceptions of this matter (Syakur et al., 2020).

Based on this, the purpose of this study is to determine and analyse public perceptions about Renewable Energy in Indonesia and determine what communication strategies are needed, to increase public awareness about Renewable Energy in Indonesia (Setyawati, 2020). In order to identify current difficulties, utilization, costs, policies, and socialization surrounding renewable energy, this article will examine and research how the Indonesian population views it. In terms of emphasizing renewable energy in terms of philosophy and thinking about energy from the standpoint of communication, the study will be ended with a review of renewable energy in the form of how the Indonesian people see it and how communication is used in Indonesia.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Social interaction has an important role in the process of knowledge transfer between individuals as occurs in the work environment, social and economic background (Ahmed et al., 2018). Each has a different point of view in responding to an issue that has been or is still developing in society. One of these issues is the use of renewable energy (Harjanne & Korhonen, 2019).

In a study in South Korea, the application of renewable energy in life will significantly affect the socio-economics of the community, so people's perceptions of the use of renewable energy must be considered (Park, 2020). High levels of conflict can arise at the regional or national level when there is insufficient discussion on how the general public views energy-related facilities locally and nationally (Kim et al.,

2020). The attention of the governments and scholars in various nations has thus been on how to change how the general public views renewable energy sources.

According research by Kardooni et al. (2018), who examined public opinion in Malaysia on renewable energy and climate change, the majority of Malaysians who are concerned about climate change are those who are familiar with renewable energy technologies. Another study conducted in Greece looked into the elements influencing people's views on renewable energy sources and their readiness to pay for their inclusion in the electricity mix (Ntanos, Kyriakopoulos, et al., 2018). The majority of the respondents have solid understanding of renewable energy and have a favorable attitude toward renewable energy systems (Ntanos, Skordoulis, et al., 2018). This suggests that, together with the assessment of public readiness to pay, public perceptions of these resources should be taken into account as one of the key problems for their usage.

Perception is described as "Experience about things, events, or relationships received by inferring information and interpreting signals" by (Putri et al., 2022). Sensory stimuli have meaning thanks to perception. Because accurate perception is necessary for efficient communication, perception is sometimes referred to as the essence of communication.

Motivating action is one of the communication strategy's primary goals. It is not merely a matter of elements connected to technologies, institutions, regulation, and financing that affect the implementation of renewable energy. The future of renewable energy will also depend on how policymakers, industry, and the general public perceive it and how they are aware of it (Herbes et al., 2017). Through the use of more consistent, comprehensive, and rigorous techniques to pre- and post-campaign planning, more targeted, effective communications campaigns for renewable energy can be produced. For the successful implementation of renewable energy, some nations have already developed a communication plan blueprint.

RESEARCH DESIGN

The research method was determined based on research objectives and hypotheses. A mix method was employed in this study, which is a research strategy that blends qualitative and quantitative research (Andreotta et al., 2019). The design of this research is based on the type of analytical descriptive research by collecting and

recapitulating data that is not recorded in the form of numbers but is explained as clearly and as deeply as possible (Zulkarnaen, W., et.al., 2020). Mixed research produces facts that are more comprehensive in examining research problems. The approach used by the author in carrying out this research is a quantitative research approach. The method used in data collection is the survey method. Data collection is carried out by stages of process based on the procedures in the field and the selection of data collection techniques is precisely picked through the nature, character, and frequency of respondents sampled.

Data Collection and Analysis

Data collection techniques aim to obtain data / information that can explain and / or answer research problems objectively (Rahi, 2017). Utilizing the following techniques, gather the facts and information the author requires: While this research used both a document study and a questionnaire, the questionnaire was the primary instrument used. It contained a variable that was measured using a Likert scale (a scale of measurement used to measure the respondents' responses to the research object), which asked respondents to indicate whether they agreed or disagreed with a series of statements about the variables used in the study. The data collected was analyzed through statistical analysis using SPSS.

Population and Samples

The study population consists of people of Indonesia country. The research sample is done by simple random sampling and got 400 samples according to the minimum requirement of research. The data collection process was done through a digital form questionnaire that was distributed through the random selection in two months. The digital form of questionnaire were distributed in 15 provinces through professional associations, community associations consisting of interests and hobbies such as automotive, sports and other groups as well.

Questionnaire

The questionnaire is divided into 2 parts, the first is a survey of the demographic factors of the respondents which described gender, age, status of marriage, education, job/ profession and location. The second part is a survey about public perception of renewable energy, shown in the table as follows table 2.

RESULT AND DISCUSSION

The demographic characteristics of respondents

In the table shown that characteristic of the samples divided to gender, age, marriage status, education, job/ profession and location. From the available data shown that the majority respondents are 17 – 20 years old, with the last educational background is high school and the largest profession is students, this is because many surveys are carried out in the university environment. Due to limitations, the survey was conducted only in 15 provinces and the majority of respondents (61.8 percent) live in big cities.

The Quesionnaire Results :

Figure 1 describes the respondent's perception about the concept of RE, as shown all of these statements generally respond with similar numbers which is up to 50% averages. In the biggest percentage stated that there are 71,75% respondent's comments indicating they knew much about the concept of renewable energy related to renewable energy coming from the sun and bioenergy. Solar and bioenergy are two types of renewable energy sources that are most widely chosen compared to other renewable energies (Weldekidan et al., 2018).

In Figure 2 shown a fairly good public perception of Renewable Energy Technology, There are 71.5% respondents volunteered comments indicating that renewable energy technology is still largely imported. While, there are 54,50% respondent's comments indicating that existence of its own production technology in the context of developing renewable energy.

In Figure 3 shown that the highest figure of 73,5% states that respondents have perception that renewable energy has been done in the form of buying energy-saving products. But, only some people indicated they knew about the use of renewable energy, where around 64,00% of respondents stated that the use of renewable energy has been carried out in the form of taking part in energy-saving actions.

Figure 4 shown that respondents perceptions of policies on renewable energy on average are similar, the highest perception whereas 64.5% stated that the policies made involved the private sector and the general public and 51,25% respondents stated the government makes policies by encouraging bank credit to finance renewable energy.

In Figure 5 shown that 54.25% people perceive the price of renewable energy has an economic value for its consumers. Even though in reality the price of renewable energy is not in accordance with the wishes of the community which can be seen from the low response of the community regarding this matter, likewise the price of renewable energy is not yet in accordance with the quality offered which only reaches 48.25%.

In Figure 6 shown that that the Socialization of Renewable Energy has been done mostly in the form of information through online media. In addition, this socialization can be carried out well because of the cooperation between central, regional, private, community organizations and the general public (66.35%). Otherwise, 52.5% respondents believed that the socialization of Renewable Energy has been carried out in the form of direct information.

Based on the questionnaire results, we found that: (1) public's perceptions about renewable energy are related to educational attainment, status, and how much they got info from online media. (2) People will display more knowledge and concern about renewable energy that they have experienced personally, and will focus on buying energy-efficient products, rather than participating in energy-saving actions. (3) Almost half the people described Renewable energy technology is very important in the context of developing renewable energy. (5) People overwhelmingly see socialization related to renewable energy will be carried out properly with the cooperation between central, regional, private, community organizations and the general public. (6) More than half of the people revealed that the central government (president and ministries) is directly involved in determining Renewable Energy policies, besides that the policies made involve the private sector and the general public. (7) Few people stated that the price of renewable energy is not in accordance with the wishes of the community which can be seen from the low response of the community regarding this matter, as well as the price of renewable energy which is not in accordance with the quality offered. (8) Some people volunteered that the Socialization of Renewable Energy has been carried out in the form of information through online media and this socialization was well organized because of the cooperation between central, regional, private, community organizations and the general public.

Further, our interviews indicate that people know about the renewable energy concept and what they can do to leverage renewable energy with existing technology. In addition, there is also the use of Renewable Energy in the form of using small scale Renewable Energy at home by integrating technology that uses renewable energy (Rehmani et al., 2018). In addition, the socialization and promotion of the potential and utilization of renewable energy must be intensified. This socialization can take the form of developing and expanding the reach of information media on renewable energy. In addition, it can also be in the form of a village competition based on renewable energy innovation and the establishment of renewable energy centers in rural areas. This socialization is very important to do to support the development and application of renewable energy in 2021.

Perception is defined as "Experience about objects, events, or relationships obtained by inferring information and interpreting messages" by (Hafni et al., 2021). Sensory stimuli have meaning thanks to perception. Perception is called the essence of communication, because if our perceptions are inaccurate, there is no way we can communicate effectively. Further, the questionnaires revealed quite different levels of perception about renewable energy concepts. To be most effective, communications strategy should be designed to answer the questions that each individual has, building upon the level of knowledge as one of perception aspect that already exists. Individualized communication is unfortunately pricey. In other words, it can be said that taking into account the public's perception of renewable energy as it relates to the informant's experiences is an important part of creating public communications. Public communication is crucial since it is necessary for successful renewable energy.

One of the main purposes of the communication strategy is to motivate action. It is not just a matter of elements connected to technologies, institutions, regulation, and financing when it comes to the deployment of renewable energy (Wen et al., 2022). The future of renewable energy will also depend on how policymakers, industry, and the general public perceive it and how they are aware of it (Herbes et al., 2017). Through the use of more consistent, comprehensive, and rigorous techniques to pre- and post-campaign planning, more targeted, effective communications campaigns for renewable energy can be produced. For the successful implementation of renewable energy, some nations have already developed a communication plan blueprint. The

readiness of diverse parties to communicate is a factor to be taken into account while communicating about renewable energy. Integration across sectors associated to the scientific community, financial institutions, government, and society will result in the same problem statement formation with a conducted discourse in a socialization framework. The best formula for a solution to the problem of producing renewable energy, which involves numerous parties and interests, will come from the same wording of the problem statement. Not only that, cooperation between countries in funding, sharing experiences in policies and related science and technology are also keys to the realization of the target of renewable energy to become an energy alternative that can compete with other energies (Przychodzen & Przychodzen, 2020).

To build a more positive public opinion about renewable energy, an integrated public communication strategy is needed. Public opinion needs to be formed to understand the importance of renewable energy to create a clean environment. For this reason, socialization to the community is not only the task of the government. All parties, including the media, are at the forefront of raising public awareness. The government together with various related parties must maximize various media platforms to make communication to the public more effective, especially digital media which currently plays an important role.

It is expected that future research can enrich data that can be used as a basis for making more appropriate communication strategies. Research on the public can be made more extensive and also research with communication and media experts to formulate a more in-depth communication strategy.

CONCLUSION

Based on result, can be concluded that public perception about renewable in Indonesia in moderate result, it can be seen from some option that choosen shown value with above 50% eventhough perceptions of renewable energy prices is still low. In the conclusions, it is vital and necessary for government and other responsible authorities to invest more in learning how to communicate with people as a form of socialization about the benefits of renewable energy by considering the results of public perceptions regarding renewable energy. Until they can address the questions people want answered in a way they understand, Government's attempts at communication will be effective.

The method used here, with its open questions and FGD with expert are helpful in learning about individual's perception models to improve appropriate communication strategy.

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FIGURES AND TABLES

Table 1. Questionnaire

	Main Questions	**Sub Questions about Renewable Energy**
1	Perceptions of the renewable energy concept	Protecting the environment, environmentally friendly, comes from the sun and bioenergy, one of modern energy, non fossil
2	Perceptions of renewable energy technology	Important in the context of developing, mostly imported, existence of its own production, integration between technologies that use renewable energy
3	Perceptions about the use of renewable energy	Encouraging an energy-saving lifestyle, taking part in energy-saving actions, using small scale Renewable Energy at home, buying energy-saving products
4	Perceptions about renewable energy policy	The central government is directly involved, local governments are directly involved, the government makes policies by supporting private initiatives, government makes policies by encouraging bank credit to finance renewable energi, private sector and the general public have involved
5	Perceptions of renewable energy prices	RE Price is in accordance with : the wishes of the community, the quality offered, economic value for its consumers, the selling price
6	Perceptions about the socialization of renewable energy	Socialization has been carried out in the form of information through : Online Media, printed media, direct information, with the cooperation between central, regional, private, community organizations and the general public

Tabel 2. The Demographic characteristics of respondents

Characteristic	Description	Percentage	Characteristic	Description	Percentage
Gender	a. Man	53,5%	Location	a. DKI Jakarta	6,35%
	b. Woman	46,5%		b. Banten	2,0%
Age	a. 17-20 years old	31,3%		c. West Java	28,75%
	b. 21-30 years old	27,5%		d. East Java	18,75%
	c. 31-40 years old	23,8%		e. Central Java	15,5%
	d. d. > 41 years old	17,5%		f. Yogyakarta	11,25%
Status	a. Not married yet	43,75%		g. Aceh	3,75%
	b. Married	56,25%		h. North Sumatera	2,25%
Education	a. Primary/ Junior High School	5,0%		i. Riau	1,75%
	b. Senior High School	47,5%		j. South Sumatera	3,75%
	c. Bachelor Degree	38,8%		k. East Kalimantan	1,0%
	d. Masters and doctoral Degree	8,8%		l. South Kalimantan	0,5%
Job	a. Civil Servant	5,5%		m. Central Sulawesi	0,75%
	b. Academic/ Lecturer/Teacher	10,0%		n. South Sulawesi	1,25%
	c. Private Employee	27,5%		o. Papua	2,5%
	d. Part time Employee	8,8%			
	e. Student	48,3%			

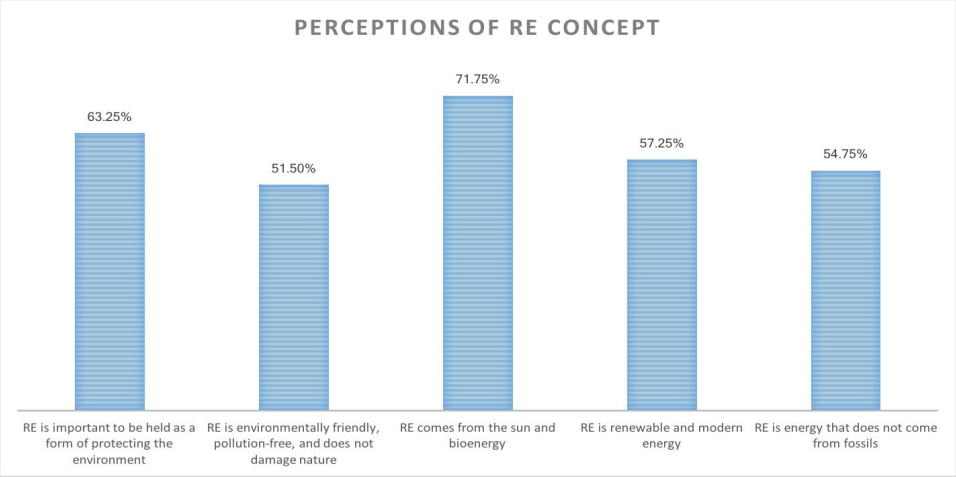

Figure 1. Public perception of the concept of RE (n = 400)
Source: Questionnaire Processing Results, 2021

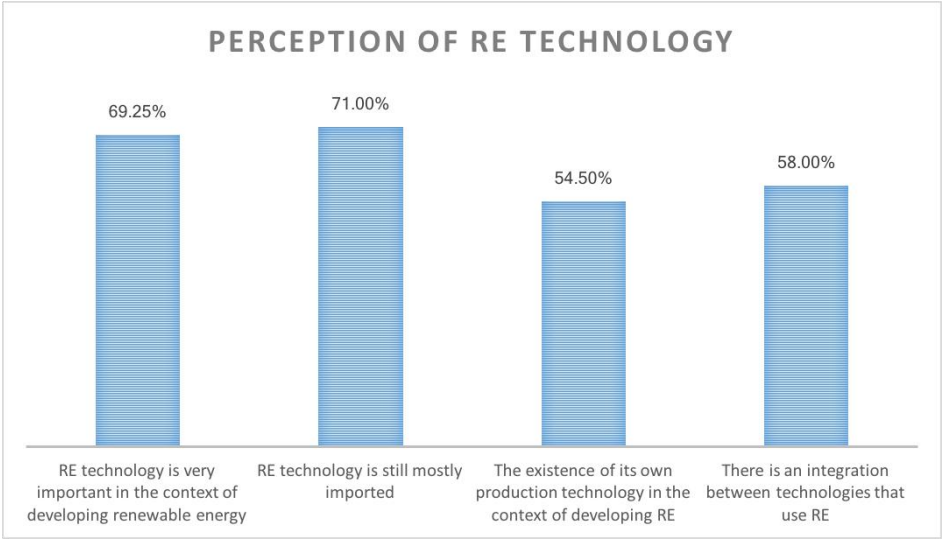

Figure 2. Public perception of RE Technology (n = 400)
Source: Questionnaire Processing Results, 2021

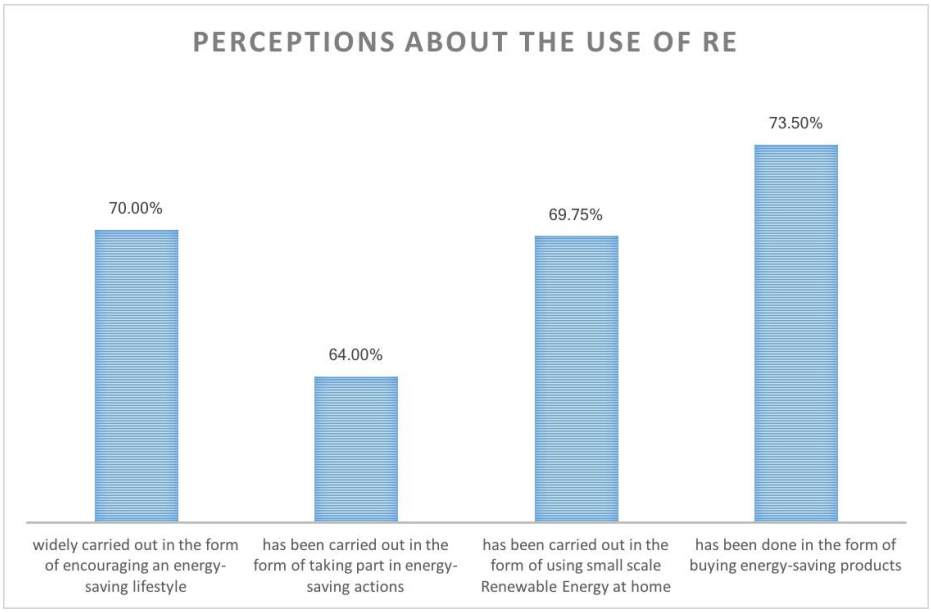

Figure 3. Public perception about the use of RE (n = 400)
Source: Questionnaire Processing Results, 2021

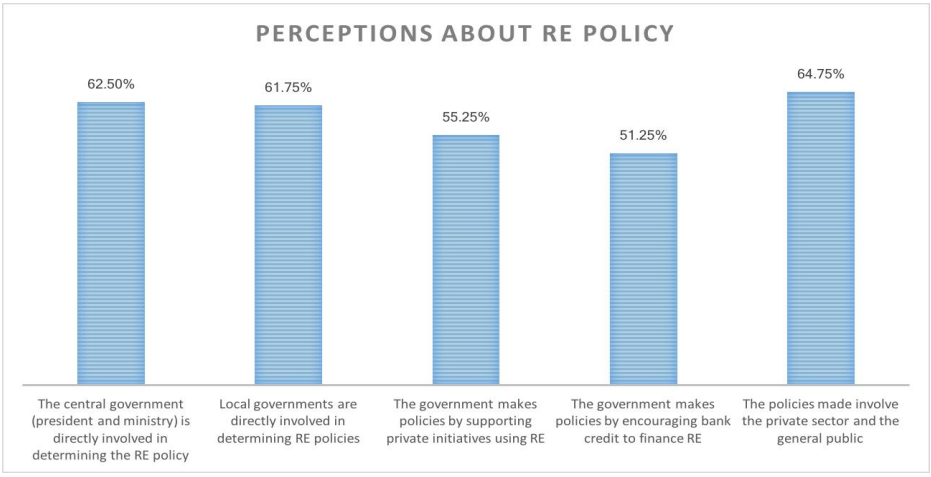

Figure 4. Public perception about the policy RE (n = 400)
Source: Questionnaire Processing Results, 2021

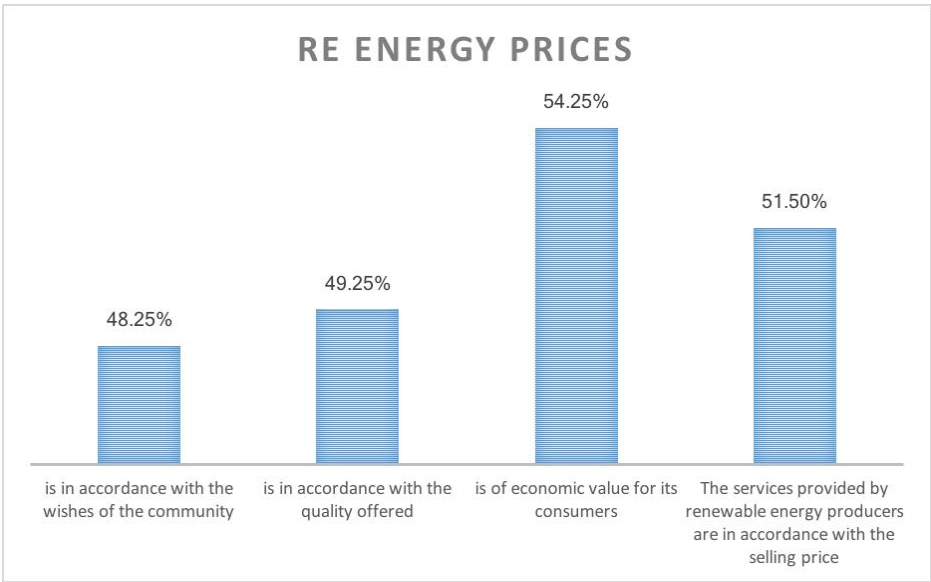

Figure 5. Public perception about the price of RE (n = 400)
Source: Questionnaire Processing Results, 2021

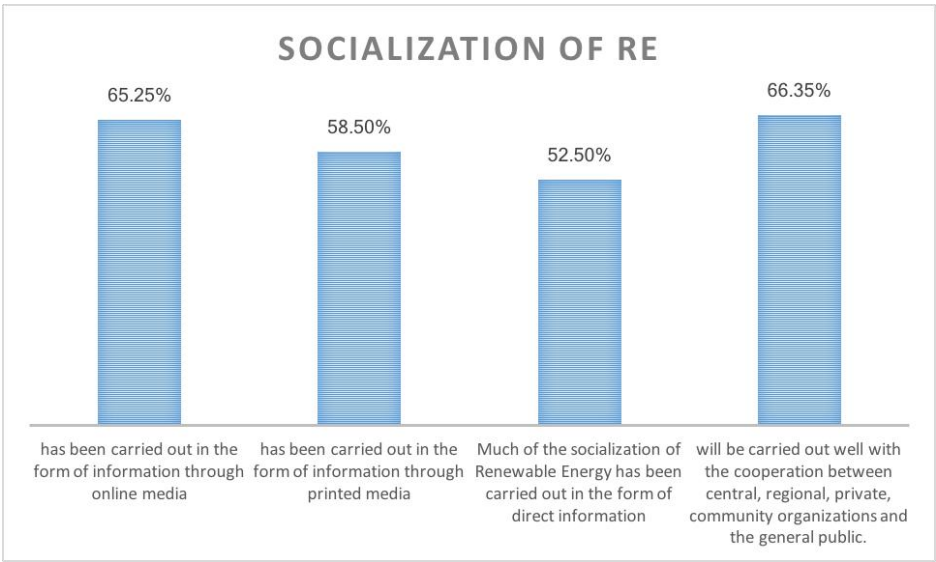

Figure 6. Public perception about the socialization of RE (n = 400)
Source: Questionnaire Processing Results, 2021