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## Poles Towards Energy Transformation and Energy Sources – Sociological Perspective

**Abstract:** The article presents the results of research on the issues of Poland's energy transformation from a sociological perspective. The exploratory analysis covered the attitude of the Polish society to the energy transformation, i.e. a change in the methods of generating energy in Poland, which results from the climate policy adopted by the Polish government.<sup>1</sup> The aim of the article is to present social awareness – the social expectations and perceptions of Poles regarding the energy transformation understood in this way – to determine whether the opinions and views of the Polish society are in line with the planned and implemented energy transformation processes. The article provides an answer to the question about the Polish society's attitudes towards the energy transformation and energy sources – to what extent the attitudes towards the proposed solutions to the problems are positive, and to what extent negative. For this purpose, the method of analysing the existing statistical data was used The basis of the secondary data analysis are the results of public opinion polls, carried out by the Public Opinion Research Centre (CBOS) in the period from 1987<sup>2</sup> to 2021. The sociological perspective adopted here assumes that the energy transformation is not only an economic but also a social process. For this reason, public support, in particular the positive attitude of respondents to new energy sources, is considered an important element of its success.

**Key words:** Energy transformation, social perception, decarbonization, renewable energy sources, nuclear energy

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### Introduction

**E**nergy transformation has an important social dimension and was conceived as a significant social change. This is evidenced by the statement of Anthony Giddens: “We have to create a future in which renewable energy sources will meet most of the demand.

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<sup>1</sup> The broadly understood climate policy of Poland covers activities undertaken in connection with the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and activities in the field of adaptation to the already occurring climate changes. For more see: *Polityka energetyczna Polski*, 2021, <https://www.gov.pl/web/klimat/polityka-energetyczna-polski>.

<sup>2</sup> The first CBOS report on the analyzed issue was published in 1987. The report was included in the study as a background for the further analysis conducted in the article, due to the fact that it shows the attitude of Poles before the political transformation, when analyzed issue could not be a part of political or social debate.

It will undoubtedly be a profound change, with complex economic and social consequences [...] no matter what happens, we will strive for a form of society that will eventually turn out to be completely different from the one we live in now.” (Giddens, 2010, p. 21). It is worth emphasizing that the energy transformation of the European Union is based on the assumption of balancing the goals of environmental protection, economic and social development. By definition, therefore, it should prevent overburdening the poorest with the costs of change, counteract the phenomenon of energy poverty (Herudziński, Boguszewski, Owczarek, Bondyra, 2019) and mitigate the effects of changes for mining regions. This goal is to be framed by the so-called “just energy transformation” (García-García, Carpintero, Buendía, 2020).

It is worth emphasizing that social analyses of energy transformation processes are important not only from the point of view of the sociology of knowledge and public awareness, but also from the point of view of today’s key social problems related to climate change and the establishment of policies aimed at preventing its harmful effects. In this perspective, tracing the attitudes of the Polish society towards the energy transformation that is being implemented in Poland may constitute a starting point for comparative studies with other countries.

Thus, the sociological perspective adopted here assumes that the energy transformation is not only an economic but also a social process. For this reason, public support is considered an important element of its success. At the same time, it is assumed that public support for the energy transformation largely depends on the acceptance or rejection of energy sources alternative to coal. In order to answer the research problem contained in the question about the attitude of Poles towards the energy transformation, the Polish society’s attitude towards individual energy sources was also analysed, with particular reference to nuclear energy. The atom, as a stable source of energy, raises the greatest hopes for the country’s energy security, but it also arouses greater social concerns than other energy sources – mainly regarding environmental safety. The structure of the article includes an introductory part that outlines the basic assumptions of the country’s climate and energy policy. The subsequent parts present the results of empirical research showing the attitude of Poles to the country’s energy transformation processes – their ways of thinking and opinions on the planned and implemented changes in the methods of energy production and opinions on energy sources alternative to coal, in particular the atom.

The importance of analysing social awareness in the perspective of energy transformation is evidenced by the dispute underlying the global changes, i.e. the ongoing discussion focused on answers to basic questions about climate change. It is about social beliefs, about whether climate change is taking place, whether we are dealing with an increase in average temperatures, whether it is caused by human activity and whether it will affect the way we function – a dispute that divides societies and challenges climate policy and all efforts to curb global warming. Assuming that public opinions and ways of thinking are very important, because they translate not only into the planned policy, but also the effectiveness of its implementation, it is worth pointing to the difficulties in resolving disputes that arise in the sphere of social awareness. In this dimension, it is difficult to find authoritative yet universally accepted solutions, e.g. based on scientific findings. To illustrate the importance of social mechanisms

concerning beliefs, it is worth pointing to the questioning of scientific findings and making them a field of discussion. Such examples are provided in the work of US environmental sociologist Robert J. Brulle (Brulle, 2013), who describes the ways in which public opinion on climate change is shaped by groups that deny the problem of global warming and relevant scientific findings. Meanwhile, the scientific data contained, for example, in the report on global warming by the International Panel on Climate Change (IPCC, 2018) unequivocally state that human activity has led to an increase in global average temperatures by about 1 degree Celsius compared to the pre-1850 period (the industrial revolution). Additionally, at the current rate of change, global warming is expected to reach 1.5 degrees Celsius between 2030 and 2052. It is worth emphasizing that these findings, being the results of scientific analyses, have not been explicitly refuted up to now. Therefore, in the perspective of scientific procedure, they should be treated as a fact. Importantly, this has not resulted in the disappearance of beliefs questioning the phenomenon of global warming of anthropogenic origin and its adverse consequences for humanity. In this context, it is important that contemporary social problems such as climate change, if they are to be addressed effectively, must not only be properly researched, but also, as such, must be defined in public consciousness. It is especially important in democratic systems where public beliefs and opinions constitute an important element of legitimizing political actions (Herudziński, 2018, pp. 109–121).

Undoubtedly, one of the key global problems of modern times and the specific challenge facing the European Union and the Polish society today is the so-called energy transformation. In its assumptions, it is a process that responds to the climate policy adopted by the European Union, of which Poland is a member state. The key element of the implemented change is the creation of the so-called zero-emission economy, which entails abandoning the use of fossil fuels for electricity generation.<sup>3</sup> In the case of Poland, whose energy industry relies on the use of coal as an energy source, its energy transformation is primarily based on the so-called process of decarbonizing the economy. It involves the rejection of both hard coal and lignite as an energy source and striving to reduce carbon dioxide emissions altogether. The key in this regard is the answer to the question – what energy source will they be replaced with. Basically, the energy transformation processes being implemented in Poland are supposed to be based on “decarbonization” understood as giving up coal as an energy source and “zero-emission” understood as using the so-called clean energy sources, i.e. non-polluting and greenhouse gases, including CO<sub>2</sub> (carbon dioxide). From the Polish perspective, they include RES (Renewable Energy Sources), mainly wind and hydro power plants (although the latter to a much lesser extent), photovoltaic plants

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<sup>3</sup> When discussing the energy transformation process in the EU, it is important to show the attitude and strategy of the Polish government about the process. Especially with a view to achieving climate neutrality by Poland. Relevant information on this subject is contained in the publication of the Center for Climate and Energy Analysis by Maciej Pyrka and co-authors “Poland net-zero 2050. Roadmap of achievements. Community climate policy goals for Poland until 2050”. Due to its importance and specificity, this issue (in particular, confronting social attitudes regarding climate neutrality with knowledge about the critical stages of moving away from non-renewable energy sources) requires a separate study beyond the scope of this article.

and nuclear power plants. Importantly, there are currently no nuclear power plants in Poland, they are only in the planning stage and it is not certain that they will be built in the future. However, assuming that this happens, the construction of at least two facilities of this type is planned, and the first of them is to be completed in 2033. At the same time, this scenario assumes a significant share of nuclear power plants in electricity generation. It is roughly estimated at around 20% to 25% in the first half of the 2040s. In 2021, as part of the Polish Energy Policy until 2040 (PEP2040), the Polish government estimated the expenditure for this purpose at PLN 1,600 billion and plans to spend it in the period from 2021 to 2040. At the same time, PLN 260 billion from EU and national funds are to be allocated to the national energy transformation by 2030 (*Polityka energetyczna polski*, 2021). From the perspective of sociological analysis, an important aspect of electricity generation using atomic processes (nuclear fission) is the ambiguous attitude of society, which points to a number of concerns related to its use. In particular, there is a sense of threat in terms of environmental safety. This is most often associated with an awareness of possible environmental contamination as a result of a disaster. Associations of nuclear energy with weapons of mass destruction and the events at Fukushima, and earlier Chernobyl, are permanent fixtures in public consciousness.<sup>4</sup>

Taking into account the purpose of the article, which is to present the opinions of Poles on the energy transformation, and in particular – to determine whether the opinions and views of the Polish society are in line with the planned and implemented processes of the country's energy transformation, the main conclusions should be presented in relation to three fundamental dimensions. The first is the perception of climate change and the pace at which climate neutrality is achieved. In this regard, it should be said that Poles perceive climate change as a threat. This attitude is invariably shared by the vast majority of respondents throughout the analysed period from 2009 to 2021. There is a greater variety of opinions presented in terms of the perception of the pace at which Poles would like to achieve climate neutrality. Almost half of the Polish society believes that it should happen by 2050 and more than a quarter would like to achieve it even faster. However, a significant number of Poles, almost as many, are convinced that these changes should be achieved at a pace adapted to the possibilities of the Polish society, and not within a specific time limit. At the same time, research results show that the perception of climate change as a threat correlates with the desire to achieve climate neutrality faster. The second dimension is the attitude to the decarbonization processes and the reduction of greenhouse gas emissions. The main conclusion from survey results in this respect is that Poles accept the decarbonisation of the Polish energy sector, treating it as a necessary process of energy transformation. The third dimension involves ideas about the future and indications on what sources the Polish energy sector should be based on. Basically, it can be said that Poles expect a decrease in energy produced from coal with a simultaneous increase in the production of renewable energy sources (RES). At the same time, the respondents believe that coal will not completely disappear as a component of the so-called “energy mix” in the future. Moreover, Poles cannot imagine the Polish energy sector functioning without coal and even say that its share in the future

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<sup>4</sup> The tragic consequences of the catastrophe, consisting in environmental contamination due to irregularities in the operation of nuclear power plants.

should be greater than that of nuclear energy. Therefore, it is worth highlighting a significant difference in relation to the planned energy transformation processes. In addition, the role of gas, which the Polish society apparently does not treat as a “transitional” fuel, but as a stable and important part of Poland’s future energy mix, looks different than in the modernisation assumptions.

### Literature review

The EU’s strategy for the energy transformation towards more environmentally and climate-friendly energy sources has led to increased public interest in the perception of the proposed changes in many European countries. Only in recent years, many European researchers have taken up the subject of social acceptance of energy transition. A survey examining the public’s acceptance of energy technologies was conducted by German scientists in June 2021 (Baur, Emmerich, Baumann, Weil, 2021). The authors’ goal was to “assess the social acceptance of three energy technologies relevant for the German energy transition: stationary battery storage, biofuel production plants and hydrogen fuel station”. Results indicated a high level of acceptance of all the three technologies. Stationary battery storage was perceived as positive by 85% of respondents; biofuel production plants – by 74%; hydrogen fuel station – by 75%.

Social perception of RES, considered the main source of energy following a successful energy transformation, was also a subject of other recent research. Studies based on social surveys have been, for example, carried out in Portugal (Botelho, Pinto, Lourenço-Gomes, Valente, Sousa, 2016). In view of the presented data, RES were generally perceived as the most environmentally friendly energy sources and considered as socially acceptable. The high level of acceptance for electricity supply sources in Europe has been also confirmed by the results of The European Social Survey. Research conducted in 23 European states<sup>5</sup> indicates that around two-thirds of respondents think “that a large or very large amount of electricity should be generated from hydro-electric or wind power, and three-quarters think that should be the case for solar power”. Moreover, a small percentage of respondents support obtaining electricity from coal and nuclear plants (about 10%) (ESS, 2018, pp. 10–11).

Literature review can be also supplemented by articles on the transition to a post-carbon society worldwide. The attitudes and public perceptions towards the RES were the main topic of studies carried out in: Montenegro (Djurisic, Cerovic-Smolovic, Misnic, Rogic, 2020), India (Swain, Mishra, 2021), Korea (Ji-Bum, Eun-Sung, 2018). Local initiatives and civil society campaign employing environmental justice discourse in fossil fuel production area in New South Wales were the topic of an article prepared by Australian scholars (Evans, Phelan, 2016). A local perspective, both regional and sectoral sense, was also provided in the study of Polish fruit growers’ attitude to climate change in the Sandomierz region (Karaczun, Swacha, Herudziński, 2022).

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<sup>5</sup> The study was conducted in: Austria, Belgium, Czech Rep., Estonia, Finland, France, Germany, Hungary, Iceland, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, United Kingdom (EU/EFTA countries) and Russian Federation and Israel.

**Results**

The need for changes in the energy sector in Poland has been signalled for a long time, but the final shape of the transformation processes has only recently become known to the public, as it results from “Poland’s Energy Policy until 2040” – a new strategic document approved by the Council of Ministers on February 2, 2021. The presented research results were compared to the new reality (a new strategic document), which on the one hand makes them valuable, but at the same time greatly hinders the potential for polemics and discussion on possible changes in public awareness as a reaction to government proposals or specific actions – the introduction of specific changes.

**Perception of climate change and the pace of achieving climate neutrality**

When describing the attitudes of Poles towards the processes of energy transformation, one should start with analysing their opinions on climate change. Climate change is treated as the basic threat to humanity and the aim of energy transformation is to halt temperature rise in accordance with the so-called Paris agreement. It was in the French capital in December 2015 that almost 190 countries, including the European Union and its member states, set the goal of measures to “limit global warming to a value below 2°C and keep it at 1.5°C”). It was the first legally binding international climate agreement. According to the signatory states, the implementation of this agreement reduces the risk and effects of climate change. In order to mitigate climate change, it is necessary to reduce emissions so that a balance between the emission and the absorption of the so-called greenhouse gases can be achieved in the second half of the 21<sup>st</sup> century. The so-called national climate action plans, submitted by national governments of individual countries, translate the global assumptions into the level of specific actions. It is important to recognize the need to improve the ability of societies to cope with the effects of climate change and to “provide developing countries with constant and increased international support to enable them to adapt to climate change” (*Porozumienie Paryskie*), which should be carried out by applying the idea of “just energy transformation”, and from the social perspective helps to tackle such phenomena as energy poverty.

By analysing the attitudes of Poles to climate change on the basis of nationwide studies carried out by CBOS, it is possible to track changes in their views on the importance of this phenomenon and on the degree of threat that is attributed to it.

Table 1

**Opinions of Poles on climate change**

| <i>Which of the following statements best reflect your view on this issue?</i> | 2009 | 2014 | 2016 | 2018 | 2021 |
|--|------|------|------|------|------|
| 1  | 2    | 3    | 4    | 5    | 6    |
| Climate change is currently one of the greatest threats to modern civilization | 15   | 18   | 22   | 29   | 26   |



| 1   | 2  | 3  | 4  | 5  | 6  |
|---|----|----|----|----|----|
| Climate change is a threat, but it is one of the many dangerous phenomena | 56 | 57 | 53 | 54 | 52 |
| Climate change is not a particularly important threat                     | 16 | 12 | 11 | 8  | 12 |
| Climate change is not a dangerous phenomenon                              | 4  | 5  | 3  | 3  | 3  |
| There is no such thing as climate change                                  | 1  | 2  | 2  | 1  | 1  |
| Hard to say   | 8  | 6  | 9  | 5  | 7  |

**Source:** The authors' compilation based on CBOS research carried out in the period from 2009 to 2021.

On the basis of the presented results, it can be generally stated that Poles invariably perceive climate change as a threat. In the last 12 years (from 2009 to 2021), such an opinion was shared by the vast majority (over 70% of respondents said so each year). A different view (climate change is not a threat) was held by a clear minority of respondents (this group never exceeded one fifth of the respondents) during this period. A negligible percentage (within the margin of error) are the respondents who deny the phenomenon of climate change. The reversal of a clear upward trend in the latest survey is explained by the emergence of a new phenomenon, the COVID-19 pandemic, perceived as the main modern threat (Roguska, 2021).

An important issue regarding the perception of climate change is also the pace at which Poles would like to achieve the goal of climate neutrality (understood as the state of equilibrium between the level of greenhouse gas production and the degree of their absorption from the atmosphere). Under the Green Deal, the European Union should achieve this state in 2050, but individual member states declare different, more or less ambitious deadlines. Poles have different opinions on this issue. Almost half of the respondents (48% in total) support the objectives adopted by the European Union, expressing the opinion that it should happen by 2050. Over a quarter (27% of the total) declare greater ambitions and would like to achieve the level of climate neutrality earlier – “as soon as possible”. At the same time, the other part of the society, slightly smaller (43%), is of a different opinion and believes that these changes should be achieved at a pace adapted to the capabilities of the Polish society, and that the date of achieving climate neutrality is of secondary importance. Significantly, the two elements of public perception characterised earlier are interrelated. Attitudes to climate change are related to views on climate policy in such a way that perceiving climate warming as a threat is linked to ambitious requirements on deadlines for achieving climate neutrality. Also noteworthy is the correlation between socio-demographic characteristics and opinions on the threats of climate change and the pace of achieving the postulated climate neutrality. Inhabitants of the largest cities are more likely to perceive climate change as the greatest threat and at the same time would like to see climate neutrality achieved by 2050 (44% and 48%, respectively). The best educated and wealthiest people are a similar category in this respect. They perceive climate change as the greatest threat and want to achieve climate neutrality by 2050 (respectively 33% and 36%). The third factor that clearly differentiates the Polish society in this respect are political views. Respondents with a left-wing political orientation more often declare climate change as the greatest threat and also strive to achieve climate neutrality faster (respectively 41% and 42%).

**Opinions of Poles on the process of decarbonization and reduction of greenhouse gas emissions**

When describing the attitudes of Poles towards the energy transformation process, it is necessary to start with an analysis of their perception of the key decarbonization processes<sup>6</sup> and reduction of greenhouse gas emissions. In light of the presented research results, Poles accept the decarbonization of the Polish energy sector as a necessary element of the energy transformation processes. In recent years, the number of people who consider coal to be the basic resource on which the national energy industry should be based in the future has significantly decreased, from nearly one third to one fifth, while the number of those who see the future of energy industry in other energy sources has increased (see Table 2).

Table 2

**Opinions of Poles on the importance of coal-based energy**

| <b>In your opinion, in the next 10–20 years, energy generation in Poland</b>                        | <b>2015</b> | <b>2018<sup>7</sup></b> | <b>2021</b> |
|---|-------------|-------------------------|-------------|
| Should be based primarily on domestic hard coal resources   | 30          | 19                      | 19          |
| We should gradually move away from coal-based energy and develop other methods of energy production | 61          | 72                      | 74          |
| Hard to say   | 9           | 9                       | 7           |

Source: The authors' compilation based on CBOS in: 2015, 2018, 2021.

Positive views on the decarbonisation processes were found in all socio-demographic categories. In particular, high support for decarbonization of the Polish energy sector was recorded among residents of the largest cities (90%), affluent people (91% of respondents with incomes exceeding PLN 3,000 per person) and well-educated people (86% of respondents with higher education). In this respect, the views of Poles are linked to declarations regarding political attitudes. There are more supporters of decarbonisation in each group, but they clearly dominate among those with a left-wing political orientation, while its opponents are more numerous among those who lean to the right (27%). Similar responses were obtained in the politically indifferent group (26% of them support hard coal as the main resource used to generate energy).

**The future of the energy industry in Poland – social expectations of Poles regarding electricity sources**

Basically, the Polish energy transformation involves decarbonization and the development of renewable energy sources and nuclear energy. In this concept, natural gas is treated as the so-called “transition fuel” that generates lower carbon dioxide

<sup>6</sup> The CBOS reports, which are the basis for the secondary data analysis conducted in the article, do not distinguish the attitude of Poles towards energy based on lignite and hard coal. The categories used by CBOS in the cited studies are: hard coal resources and coal-based energy.

<sup>7</sup> The 2018 survey asked about changes over the next 20–30 years.



emission than other fossil fuels. Currently, coal is the main source of energy in Poland, and although its share is decreasing, more than two-thirds of electricity is still produced from coal. Only one third of electricity comes from renewable energy and natural gas (18% and 10% respectively; an additional 2% from other energy sources) (Ministerstwo Klimatu i Środowiska). As part of the research carried out by CBOS (Roguska, 2021), the planned changes in energy production were compared with the expectations of Poles (in the short-term and long-term perspective). The fundamental change in the predictions of the respondents concerns a significant decrease in coal-based energy production and a significant increase in RES-based energy production. In light of the research results, Poles expect that renewable energy will be the source of almost half of electricity. Nevertheless, in both short-term and long-term predictions, coal is still perceived as an important component of the so-called “energy mix”. Interestingly, according to research results, the importance of coal as a source of electricity is higher than nuclear energy.

This testifies to a high level of distrust towards nuclear energy, which seems to be perceived as less environmentally friendly than coal, despite the widespread awareness of coal’s weakness as an energy source. In the minds of Poles, the most stable source of energy is natural gas, which accounts for about 20% of the “energy mix” in visions of the future.

Table 3

**Sources of electricity in the future (percentage of the so-called energy mix)**

|         | Coal | Natural gas | Renewable energy sources | Atom | Other sources | N     |
|---------|------|-------------|--------------------------|------|---------------|-------|
| In 2035 | 32.7 | 21.4        | 33.8                     | 8.0  | 4.1           | 828*  |
| In 2050 | 15.4 | 20.6        | 47.1                     | 12.4 | 4.5           | 821** |

\* People who could not answer these questions were excluded, they constituted a total of 29% of the respondents.

\*\* People who could not answer these questions were excluded here, they constituted a total of 29% of the respondents.

**Source:** The authors’ compilation based on CBOS.

When analysing the future of the Polish energy sector in public awareness, it is worth emphasizing the different ways of thinking resulting from socio-demographic differences. Coal as an energy source is viewed most critically by the wealthy, highly educated, young, residents of large cities, who see the least coal in Poland’s future energy mix. Much less diverse attitudes, but analogous in terms of socio-demographic characteristics, are held towards gas as an energy source. It is mainly the less educated, less affluent, elderly and inhabitants of rural areas who attribute greater importance to gas in the future. The least controversial change concerns the growth of renewable energy sources. It is highly ranked in Poland’s future energy mix by young, better educated, wealthy residents of the largest cities, but also women, middle-aged people, people with secondary education and residents of small and medium-sized towns. On the other hand, the development of nuclear energy seems to be the most controversial. It is more often than on average supported by the young, men, wealthy inhabitants of the largest cities.

Table 4

**Support for the idea of building nuclear power plants in Poland**

|                                  | 1987 | 1989 | 2006 | 2008 | 2011 | 2013 | 2016 | 2018 | 2021 |
|----------------------------------|------|------|------|------|------|------|------|------|------|
| I would support the construction | 30   | 20   | 25   | 38   | 40   | 35   | 38   | 34   | 39   |
| I would oppose the construction  | 39   | 46   | 58   | 45   | 53   | 52   | 50   | 50   | 45   |
| Hard to say                      | 31   | 34   | 17   | 17   | 7    | 13   | 11   | 16   | 16   |

Source: The authors` compilation based on CBOS.

**Materials and methods**

The study employed the analysis of existing data, involving the processing of data and results of existing research in order to analyse the research problems presented above and the hypotheses based on it. Statistical methods with the use of SPSS program were also used. The analysis of the processed data was based on the results of representative nationwide public opinion polls carried out by the Public Opinion Research Centre (CBOS) in the period from 1987 to 2021. The surveys were carried out as part of typical studies on *Current problems and events*, where the technique of computer-assisted *face-to-face* interviews (CAPI) was used on representative random samples each consisting of about a thousand people – adult residents of Poland. In 2020, CBOS modified the research procedure. The *mixed-mode* procedure is used. Adult residents of Poland are surveyed, the sample is representative, personal, and respondents are drawn from the PESEL register. Each respondent chose one of the three methods on their own: 1) direct interview with the interviewer (CAPI method), 2) telephone interview after contacting the CBOS interviewer (CATI), the respondent received contact details in the CBOS announcement letter, 3) self-completion of the online questionnaire, access to which was possible with a login and password provided to the respondent in the announcement letter from CBOS. In each of the methods used, the questionnaire had the same set of questions and structure. The proportion of direct, telephone and Internet interviews is given each time.

**Conclusions**

Energy transformation is a deliberately and consciously planned process, but its success is determined by the actions and commitment of its participants. Therefore, it is important to consider energy transformation from the perspective of the society’s attitude towards it – in particular the attitudes of individual communities towards specific changes implemented in their area. Public attitudes towards individual energy sources deserve particular attention. Taking into account the previously analysed nationwide surveys, it should be stated that the majority of the Polish society is in favour of processes aimed at decarbonizing the economy, although there are some differences in thinking, mainly related to the timeframe for achieving this goal. In principle, the achievement of climate neutrality in the public consciousness of Poles should be extended over time. Notions about Poland’s future energy mix (after two decades) associate it mainly with

the growing importance of renewable energy, which Poles believe should become the main source of electricity. Importantly, in a specific time frame, gas should be a more important source of energy than today. It should also be emphasised that, in the opinion of respondents, coal should remain among the energy sources in Poland, albeit to a much lesser extent. This clearly demonstrates the evolutionary, rather than revolutionary, attitude of the Polish society to changes in the field of energy. At the same time, the declarations of those surveyed show a certain reserve in their approach to the development of nuclear energy in Poland. It seems that Poles are a bit more afraid of energy obtained from the atom than from coal, which is already a familiar source for them.

Summing up, the results of the presented research allow for the conclusion that the Polish society generally supports the direction of changes in the field of energy transformation, but there are also significant differences. Firstly, Poles unanimously perceive climate change as a threat, but are divided on the pace at which Poland should achieve climate neutrality. Almost half of the Polish society is of the opinion that it should take place by 2050, while the other part, almost as large, is in favour of adjusting the pace to national capabilities. Secondly, Poles accept the process of decarbonizing the Polish energy sector, treating it as necessary. Thirdly, speaking about the future of the Polish energy sector and indicating what sources it should be based on, they expect a decrease in energy produced from coal with a simultaneous increase in the production of renewable energy sources (RES). The discrepancies between the planned energy transformation and the expectations of Poles concern coal and gas, which in their opinion, in addition to energy obtained from nuclear power, will still be components of the so-called “energy mix”.

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## **Polacy wobec transformacji energetycznej i źródeł energii – perspektywa socjologiczna**

### **Streszczenie**

Artykuł prezentuje wyniki badań dotyczące problematyki transformacji energetycznej Polski w perspektywie socjologicznej. Analizie eksploracyjnej poddany został stosunek społeczeństwa polskiego do transformacji energetycznej, czyli zmiany dotyczącej sposobów wytwarzania energii w Polsce, która wynika z przyjętej przez rząd Polski polityki klimatycznej. Celem artykułu jest prezentacja

świadomości społecznej – społecznych oczekiwań i wyobrażeń Polaków dotyczących tak właśnie rozumianej transformacji energetycznej – określenie czy istnieje zgodność opinii i poglądów społeczeństwa polskiego z planowanymi i wdrażanymi procesami transformacji energetycznej kraju. Artykuł udziela odpowiedzi na pytanie, jakie są postawy społeczeństwa polskiego wobec transformacji energetycznej i źródeł energii – w jakim zakresie postawy społeczeństwa wobec proponowanych rozwiązań problemów są pozytywne, a w jakim negatywne. W tym celu wykorzystana została metoda analizy zastanych danych statystycznych. Wykorzystano reprezentatywne dla społeczeństwa polskiego sondażowe badania opinii publicznej realizowane przez Centrum Badania Opinii Społecznej (CBOS) w okresie od 1987 do 2021 roku. Przyjęta tu perspektywa socjologiczna zakłada, że transformacja energetyczna jest procesem nie tylko gospodarczym, ale także społecznym. Z tego powodu za istotny element jej powodzenia przyjmuje się społeczne poparcie, w szczególności pozytywny stosunek badanych do nowych źródeł energii.

**Słowa kluczowe:** transformacja energetyczna, społeczna percepcja, dekarbonizacja, odnawialne źródła energii, energia jądrowa

