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## Just transition – the first pillar of Poland’s energy policy until 2040 – legal, economic and social aspects

**ABSTRACT:** This paper discusses the issue of just transition and presents the general directions of Poland’s energy transition until 2040. The just transition plays an important role in the process of Poland’s green energy transition and not without reason – it is the first pillar of Poland’s Energy Policy until 2040. Therefore, the paper attempts to discuss the legal, economic and social aspects of the planned changes. The next part of the paper describes the just transition from the level of the European Union. It points out what challenges member states are facing and what actions they will have to take to meet the transition requirements set by the European goal of climate neutrality by 2050. Particular attention was paid to the activities of the European Commission, which is particularly involved in the process of transforming the European Union’s energy mix. This issue is extremely important for our country as it is going to be the major beneficiary of the EU transition fund. The penultimate section discusses research performed from 15 to 20 February 2022 on a group of 120 people living in different regions of Poland. The respondents answered a series of questions about general aspects of the energy transition, a just transition as well as the risks resulting from following the European Union’s climate and energy trends. Based on the answers provided, pie charts and bar graphs have been produced in order to make the analysis of the issues discussed clear and understandable. The whole study was concluded with a summary.

**KEYWORDS:** energy policy of Poland, just transition, low-carbon energy transition, renewable energy sources

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## Introduction

On 2 February 2021, the Polish Council of Ministers approved the document “Energy Policy of Poland by 2040” [hereinafter: “**PEP2040**”; “**Policy**”]. Works on the new PEP2040 have taken many years, and its importance is demonstrated by the fact that its predecessor, the Energy Policy of Poland by 2030, was adopted more than 12 years ago (PEP 2021). It is therefore highly likely that the new Policy will be in force for more than a decade. Thus, it is important that the document, which is of strategic importance for the Polish energy sector, was considered to the smallest detail – this is discussed further later in the paper.

The Polish Energy Strategy stems from the European Union’s energy policy, which determines the course of action for climate neutrality until 2050, together with specific targets that should gradually be achieved over the coming decades. The EU Member States have realized that the pursuit of a low-carbon energy transition for individual Member States, and for the EU as a whole, will not be possible without meeting the energy targets set for 2020 and 2030. One of the targets, set as a priority by the European Council in 2020, is to reduce greenhouse-gas emissions by a minimum of 55% by 2030 (the previous reduction target was set at 40%) from the 1990 levels. The objective established by the European Council in 2020 concerns the entire EU, with consideration to the national interests of individual Member States, such as: economic conditions, domestic situations, energy security, and the pursuit of a low-emission energy system while maintaining affordable price conditions for energy consumers – especially households. The objectives set for the European community are also key objectives for Poland; therefore, the actions taken in the forthcoming years and decades will be extremely important for the process of long-term energy transition in our country (PEP 2021).

The authors of PEP2040 indicate that the policy responds to the most important challenges that will be faced by the Polish energy sector in the coming decades, and provides the guidelines for the development of this sector. However, it should be remembered that changes in the energy sector are implemented over the course of years and their effects are long-term. This is reflected in the energy forecasts on which the policy is based. Renewable energy sources (RES) in Poland account for about 14% of the total generation capacity of the domestic energy system. The Polish energy sector is still dependent on coal, which was often emphasized in PEP2040. The document also underlines the importance of the just energy transition, which means that countries in which the energy sector is based on coal should receive the strongest support for the transition towards a sustainable, low-carbon energy economy. This is due to the fact that these countries will have to invest the most in their new generation capacity and in the expansion of network infrastructure.

The development of RES has been identified as one of the objectives of PEP2040, which in practice means reducing emissions in the energy sector as well as diversifying energy sources. A key role in achieving this goal will be the development of photovoltaics and offshore wind energy, as well as their increased efficiency. Therefore, these two technologies are expected to account for the largest energy volume generated from RES in 2040 (Drożdż and Mróz-Malik 2020).

In 2020, the COVID-19 pandemic had a major impact on the energy economy across the entire EU. The majority of Member States implemented necessary safety measures – quarantine and the restriction of human contact. This led to a significant reduction in energy consumption, greatly reducing demand – mainly in the transport sector. It is worth noting that, along with the drastic reduction in electricity demand, there was a significant increase in the share of renewable energy sources, despite the fact that the energy system functioned unchanged.

Additional concerns were raised with the decision to close the borders. It was feared that access to energy-sector staff, as well as to Euroatom inspectors, would be impeded, thus exacerbating the anticipated energy-sector crisis. Over time, it became clear that, thanks to good cross-border coordination, the energy market was resilient to such difficulties. However, after a period of lower demand for energy, there may be a sudden increase in demand, in which case, the energy market should be prepared for such a circumstance (Commission Staff Working Document 2020).

The epidemiological situation has created a challenge for the Member States to maintain energy supply continuity and to resume the path of development, without forgetting the implementation of the EU energy policy (Małecki 2020). The challenges in question consist primarily of rebuilding supply chains and reorganizing or completely overhauling investment plans with a focus on strategic projects. The Polish government and those involved in the energy sector face a huge responsibility to meet the post-COVID challenges. It is important that the post-pandemic economic recovery is based on low-carbon energy sources. Such actions will ensure rapid growth of the Polish economy. However, to fully realize this goal, it will be necessary to deploy national public funds with the contribution of European funds.

The energy transition of Poland planned for 2021–2040 will require large financial outlays, reaching as much as PLN 1,600 billion. Approximately PLN 867–890 billion will be allocated to investments in the fuel and energy sector. As regards the electricity generation sector, the expense is estimated to reach approximately PLN 320–342 billion. However, about 80% of this amount will be allocated to the development of RES and nuclear energy.

The above measures will be supported by European funding, which will assist the rapid pace of development and increase the scale of investments. However, the comprehensive restructuring of the fuel and energy sector may consequently lead to an increase in energy prices. This possibility, however, does not exclude the obligation to carry out the energy transition in harmony with society. Moreover, all measures should be taken to mitigate energy poverty.

The energy transition in Poland will be based on three pillars (Fig. 1).

**Pillar I – Just Transition** is primarily about ensuring new development prospects for the regions and communities most affected by the implementation of the low-carbon energy transition. Emphasis will be placed on reducing energy poverty in coal regions and developing new industries such as renewable energy or nuclear power, which will create up to 300,000 additional jobs. As this paper deals specifically with Pillar I of the energy transition, this section will not go into the subject in detail here, but the entire second section of the paper will be devoted to these issues.

**Pillar II – Zero-Carbon Energy System** is a long-term measure which will be possible after the launch of nuclear energy and offshore wind energy. In addition, the growth of distri-



Fig. 1. Three pillars of the energy transition in Poland  
 Source: Energy Policy of Poland until 2040

Rys. 1. Trzy filary transformacji energetycznej w Polsce

buted and civic energy will play an important role. Furthermore, the employment of industrial energy on a larger scale, together with ensuring energy security through the temporary use of gaseous fuels, will enable the reduction of emissions and bring Poland closer to a zero-emission energy system.

**Pillar III – Good Air Quality** – in the debate on the energy transition of our country, the assumptions of Pillar III are the issue most frequently raised by the public. Air quality in Poland, especially in coal regions, is either poor or very poor. The public is aware that air quality has a significant impact on people’s health, so the key objective of Pillar III is to ensure clean air for all Poles. This will not be possible without specific actions, and by specific actions I do not mean just the ones taken by the government or local authorities, but also those taken directly by the society. First of all, the transition of the heating sector will be crucial – moving away from coal-fired heat, creating favorable conditions for the construction of passive and zero-emission houses, as well as investing in electromobility in private and public transport (PEP 2021). The dynamic development of electric vehicles sets important objectives for Poland’s electricity sector. Thus far, it has been a new concept, but for several years now, car manufacturers have been showing increased interest in e-mobility. Therefore, Distribution System Operators face the big challenge of preparing the necessary infrastructure that will enable the development of Polish electromobility (Drożdż 2018).

## 1. Pillar I – Just Transition

The energy transition requires several steps to enable launching the process of change towards a low and zero carbon economy. It is important that this process takes into account the economic situation, employment continuity and environmental conditions of the communities that will be most vulnerable to the negative effects of the transition. In particular, it will be necessary to provide new development opportunities that will create new jobs for people who have lost their current employment as a result of the transition. The energy transition should follow

a detailed roadmap with the involvement of the affected community. In short, this is what a just transition will be about.

Fossil fuel phase-out – without this condition, Poland’s energy transition will not be possible. The growing trend in global warming contributes to natural disasters, and this is one of the key reasons why the transition is necessary. In addition, the European and world markets have overtaken the Polish market, and the Polish coal-mining sector has become uncompetitive. The high costs of extraction are pushing up prices, and this in turn is causing oversupply. In the current situation, it is financially more advantageous to generate electricity from renewable sources rather than from coal-fired power stations ([Czym jest sprawiedliwa transformacja... 2022](#)).

The aim of a just transition is to avoid the scenarios of Wałbrzych and Bytom following the closure of local coal mines. On 30 September 1996, the last cart of coal left the Julia Coal Mine in Wałbrzych ([Julia Coal Mine 2021](#)). After the closure of the coalfield, the level of unemployment rose steadily in subsequent years, soaring to 27.7% in 2002, while before the closure of the mine, local unemployment rate was at a minimum level. Since 2002, the unemployment rate has been decreasing. However, this is not due to new income opportunities being offered to the affected population, but mainly due to people reaching retirement age. Younger workers have moved abroad, mainly to the Czech Republic, Spain, Great Britain, and some of them migrated as far as Iceland in search of work. It was the miners who were hit by unemployment for the longest period. Despite their high qualifications, this group had the greatest difficulty in finding a job. Mechanics and electricians were in a better situation – in their case, the unemployment rates began to fall sooner. Many of them found jobs in the Wałbrzych Special Economic Zone. Some of them went abroad, while others retired or changed their line of work. Nowadays, young secondary school graduates usually migrate to Wrocław, a province capital located only about 80 km from Wałbrzych, where they begin university studies or find a job. Most of them do not return to Wałbrzych. Since 1996, the town’s population has decreased by about 30,000 inhabitants; at present, it numbers nearly 110,000 ([Kosmaty 2011](#)).

In 1990, there were 71 mines operating in Poland, employing a total of nearly 400,000 people. By that time, some of them were already unprofitable ([Jarosz 2009](#)). In 1994, the decommissioning process began, and by 2005, only 33 mines remained in operation. Among the closed mines there were also the mines in Bytom, where 6 out of 7 operating mines were shut down. In the 1990s, before the decommissioning, the population of Bytom exceeded 200,000, today it has fallen to below 165,000. Bytom has the highest unemployment rate in Silesia at over 8%, compared to around 2% in Katowice. However, this 8% unemployment rate is mainly generated by former miners and their children, who experience structural unemployment. There are miner settlements in Bytom where the unemployment rate oscillates around 40–50% ([Bytom, the city of challenges 2019](#)).

Wałbrzych and Bytom are examples of towns where a just energy transition has not been implemented. For years it has been generally known that the mining industry in these regions is unprofitable. Despite this, local authorities failed to provide the necessary care for former workers – they did not create new jobs and have not secured a dignified life in a friendly and healthy environment for them. As a result, the towns depopulated and the unemployment rates skyroc-

keted. Most of the former miners had to fend for themselves, moving to other towns in search of employment, changing trades or, as a last resort, moving abroad. Those who stayed usually remained unemployed. Therefore, bearing in mind that due to the inevitable closure of the mining industry, it is necessary to prepare for it as well as possible – to develop new industries that will enable the continuation of employment for those most affected.

However, it is important to remember that a just transition cannot take place without engaging the community that will be affected by future job losses. It is essential for local communities to participate in building a plan for their future. The local problems should be confronted by its residents through broad public consultation. Local authorities should play an important role in the process of just energy transition. They should listen to people and, in consultation with central government bodies, ensure a safe energy transition for the region (*Czym jest sprawiedliwa transformacja... 2022*).

## 2. Legal, economic and social aspects of Just Transition

### 2.1. Legal aspects

When discussing legal aspects of a just transition, one should start by discussing the legislative context of the Energy Policy of Poland 2040 as a document which puts just transition as the first of the three pillars of PEP2040.

On 14 January 2017, the Polish Council of Ministers adopted the Strategy for Responsible Development until 2020 (with an outlook until 2030) [hereinafter: “**SOR**”] (*Information about the Strategy... 2022*). The Energy Policy of Poland until 2040 is one of the nine strategies co-creating the SOR (*Information about the Strategy... 2022*).

In 2018, the draft PEP2040 was submitted for initial consultation. In 2019, a public consultation procedure was launched to examine the environmental impact. In addition, an external entity was appointed to conduct evaluation studies of all 9 SOR strategies. The consultations enabled a comprehensive assessment of the project, supplementing it and making adjustments.

According to Article 12.2.1 of the Energy Law: “The tasks of the minister responsible for energy with regard to energy policy include preparing a draft state energy policy and coordinating its implementation”. Furthermore, Article 15a (1) states: “The Council of Ministers, on the proposal of the minister in charge of energy, adopts the state energy policy” and paragraph 2: “The minister responsible for energy shall announce, by way of a notice in the Official Journal of the Republic of Poland “Monitor Polski”, the state energy policy adopted by the Council of Ministers” (*The Energy Law Act 1997*).

With the adoption of the new Polish Energy Policy, the 2009 Energy Policy until 2030 was repealed (*PEP 2021*).

The Regulation of the European Parliament and of the Council of 14 January 2020 establishing the Just Transition Fund sets out the legal basis on which Member States will be able to receive financial support for Just Transition. Article 174 of the Treaty on the Functioning of the European Union [hereinafter: “TFEU”] states that “[...] In order to promote its overall harmonious development, the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion. In particular, the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favored regions”.

The creation of the Just Transition Fund was based on Article 175 TFEU, which states that: “Member States shall conduct their economic policies and shall coordinate them in such a way as, in addition, to attain the objectives set out in Article 174. The formulation and implementation of the Union’s policies and actions and the implementation of the internal market shall take into account the objectives set out in Article 174 and shall contribute to their achievement. The Union shall also support the achievement of these objectives by the action it takes through the Structural Funds (European Agricultural Guidance and Guarantee Fund, Guidance Section; European Social Fund; European Regional Development Fund), the European Investment Bank and the other existing financial instruments. The above article of the TFEU clearly directs the European Union to support the Member States in achieving the objectives set out in the previous article ([Regulation of the European Parliament... 2020](#)).

The implementation of the just transition process will require a number of important steps, including those related to legal issues. In particular, an in-depth legal analysis will be necessary concerning renewable energy sources, the labor market, the power market, electromobility and alternative fuels, and regulations on employment promotion or other regulations supporting entrepreneurship. It is likely that some of them will require legal changes or even the creation of new regulations to enable the smooth implementation of the just transition process. New legal solutions will be particularly needed in the post-industrial sector. Current regulations have little to do with low- and zero-carbon transition and are certainly not conducive to the development of green technologies ([Proposed recommendations... 2020](#)).

## 2.2. Economic aspects

The European Union has prepared the Just Transition Mechanism, which will make it possible to raise up to €150 billion to support the regions most affected by the social and economic consequences of the transition. These funds will come from three pillars:

- 1) Just Transition Fund – €40 billion/€89–107 billion worth of investment;
- 2) InvestEU – €30 billion worth of investment;
- 3) EIB loan facility – €10 billion/€30 billion worth of investments ([The Just Transition Mechanism...](#)).

In line with the Polish Energy Policy until 2040, the government plans to allocate around PLN 260 billion for the implementation of Poland's energy transition by 2030. The funds will come from EU and national mechanisms, such as:

- 1) Cohesion Policy – approximately PLN 79 billion;
- 2) Facility for Reconstruction and Enhanced Resilience – approximately PLN 97.8 billion;
- 3) Just Transition Fund – approximately PLN 15.6 billion;
- 4) ReactEU – approximately PLN 1.8 billion;
- 5) The remaining and new instruments – approximately PLN 67.6 billion (PEP 2021).

According to the latest EU financial perspective the years 2021–2027, the allocation of funds for Poland to mitigate the negative effects of the energy transition is to amount to €4.4bn, with €3.8bn to be allocated from the Just Transition Fund [hereinafter: “JTF”] and the remaining €560m to come from the Cohesion Policy. However, Poland will only receive the full amount if by 2022 it adopts the goal of achieving climate neutrality by 2050. Otherwise, the planned EU funding may be reduced by even half. The funds coming from JTF are to be the basic source of financing for the Just Transition, which, according to PEP2040, will cost approximately PLN 60 billion, including the national funds (Dańkowska 2021).

### 2.3. Social aspects

The Just Transition should be preceded by a public information campaign. Residents of regions most exposed to the negative effects of energy transformation should have easier access to support from the Just Transition Fund. This is why it is so important for the series of meetings to be attended by residents, local authorities, NGOs and local entrepreneurs. The meetings should be held in the form of panels, focusing on the opinions of the invited guests.

Everyone interested in the creation of the transformation plan should be given access to the work timeline, its progress, as well as having the opportunity to participate in the factual work of the working group. It is surprising that even though individual local governments and NGOs have been very much involved in the creation of the legal environment for the JTF, they have still not been invited to decision-making processes relevant for a just transition.

The active participation of local communities in coal regions that are open to a broad dialogue when planning the energy transition is an indispensable element of a just transition in many countries. Their participation makes it possible to identify needs and development opportunities as well as to adopt a roadmap that addresses these needs. It is then possible to ensure that aid is directed to the most vulnerable regions.

This is how a just transition is planned in the Upper Nitra mining region of Slovakia. For almost three years now, the local community, local government, entrepreneurs and the mining community have been engaged in an open and extensive dialogue aimed at adopting an optimal plan for the transition of the region. The aim is to incorporate the jointly developed positions into the Territorial Just Transition Plan – the document on the basis of which financial support from



the JTF is granted. It should contain information about regions applying for financial support, expected economic and social effects resulting from the implementation of the green transition, as well as an agenda of future measures to mitigate the effects of the transition. Importantly, the regulation on the basis of which the JTF was established puts an obligation on the Member States to prepare territorial plans of just transition in collaboration with local governments and social players (Anczewska 2020).

### 3. Equitable transition from the European Union level

“Europe as the first climate-neutral continent” – this is the goal the European Commission has set, which it expects to achieve by 2050. However, the President of the European Commission, Ursula von der Leyen, stressed that such a comprehensive energy transition would only be possible if it was just to all EU citizens and to the regions most affected by the transition to a green growth model. In view of the climatic, economic and social differences between the various EU territories, EU climate policy will be applied differently and unequally in each case. It is therefore important that, during this process, steps are taken to enable individual territories, sectors and their workers to keep up the pace of the energy transition and to not fall behind other countries.

On 14 January 2020, the European Commission presented the principles of the Just Transition Mechanism (JTM) to support the achievement of the energy transition and climate neutrality for EU territories for which achieving this goal is a particular social and economic challenge. Three pillars were outlined: 1) the Just Transition Fund (JTF), 2) funding from InvestEU, 3) loans from the European Investment Bank.

Under the JTF, €7.5 billion has been secured for implementing the transition. The funds come from the EU budget. Moreover, transfers from the European Social Fund Plus and the European Regional Development Fund are planned. Each Member State will be eligible to apply for funding but will first have to submit a territorial plan for a just transition which, once approved by the European Commission, will open the way for funding to be granted. The JTF money will be allocated to national budgets to finance projects aimed mainly at economic recovery and supporting the communities most vulnerable to the transition process (Cameron et al. 2020).

#### 3.1. Challenges of a Just-Transition Mechanism

Energy neutrality will only be possible if many changes are made, especially in the manufacturing sector. The existing carbon-intensive machinery in factories should be replaced by newer energy-efficient technology, and combustion engines should be replaced by electric engines.

These are just some of the changes that will require strong commitment not only from both public and private sectors.

The planned transition will lead to significant changes in the European labor market. Many existing jobs will be lost, some of them will be thoroughly transformed, and new employment centers will be created. It is certain that the planned changes in the employment market will require new professional challenges to be taken up by communities living in the regions most affected by the energy transition. In that case, it will be essential for the Just Transition instrument to work smoothly in order to ensure that no one is left out and no region is left behind (Cameron et al. 2020).

### 3.2. Sectors most exposed to job loss

The European Commission has published a report which says that the greatest loss of jobs in Europe will be in the mining sector based on fossil fuels. In addition, the report indicates that the steel, cement and chemicals sectors, as well as car manufacturers, will face a considerable challenge as they will have to implement complex adaptations in order to meet the requirements of the low-carbon economy.

There are two reasons why it is still impossible to estimate exactly how many jobs will be lost: 1) structural factors that may lead to technological change; 2) the conversion of specific industries to low-carbon production, whereby jobs will be transformed rather than lost. Therefore, the effect of the transition on the unemployment rates is still unknown. However, the European Commission maintains that it is possible to assess the level of employment in sectors most vulnerable to the energy transition. In 2018, a report was published which shows that the most significant employment decline is expected in three sectors: lignite mining; oil mining; natural gas. Moreover, the mining support services will also be affected by the transition. According to Eurostat, in the European Union these sectors currently generate respectively: 1) 237 thousand; 2) 55 thousand; 3) 46 thousand jobs. It is highly likely that most of these jobs will be lost during the energy transition, and the worst-case scenario (i.e. the loss of all jobs) cannot be ruled out.

According to Eurostat, today, the sectors producing chemicals, non-metallic minerals, metals, motor vehicles, trailers and semi-trailers collectively provide 19 million jobs across the European Union. The European Commission predicts that most of these sectors will be transformed, so that the jobs will not be lost. This, combined with workers' qualifications, will enable them to switch jobs within a particular sector (Cameron et al. 2020).

### 3.3. Regions most vulnerable to the energy transition

An important issue is the uneven distribution of the most vulnerable sectors across the European regions. Obviously, this problem particularly affects the coal-mining industry, which will have to be fully decommissioned as a result of the transition. According to 2018 data, in the European Union there were 207 coal-fired power plants located in 21 member states, that generated a total of 15% of Europe's electricity. In addition, there were 128 operating coal mines located in 12 member states. These two sectors alone provided 237,000 jobs, of which 185,000 were in the coal industry. It should also be noted that as many as 215,000 jobs were dependent on the coal industry.

According to data from individual Member States, Poland is the country most at risk of losing its jobs in the transition process. Just behind Poland are: Germany, Romania, Bulgaria and Spain. As far as regional data is concerned, the most vulnerable job market in Poland is Silesia, with almost 40,000 workers at risk of losing their jobs with total employment in the region being around 80,000. In the Czech Republic, Bulgaria and Romania, job losses in each of their coal-mining regions may amount to up to 10,000, representing one third of the total employment in each region.

Another sector facing major changes is the automotive market. Clearly, the change of global nature will be the replacement of the conventional combustion engines as the main driving unit with electric motors (Jesień and Kurtyka 2016). The automotive industry is an important sector for the Polish economy. It currently generates around 8% of GDP (The modern automotive industry... 2017). Only a profound transformation of this industry will ensure that the European climate objective can be achieved and all jobs preserved. This can be accomplished not only by adopting a detailed investment plan in advance but also by providing extensive support for workers by their retraining or relocation.

Optimistic as it sounds, however, in a similar manner to coal-mining, the automotive industry is a major job creator in some local communities. Therefore, if the automotive sector is not properly prepared for the transition, its market situation may lead to considerable job losses or even structural unemployment in particular regions of the European Union. In the production sector, the automotive industry generates over 20% of employment in Europe. It is based in 14 regions of the European Union, five of which are in Germany, while the others are in Romania, Italy, Hungary, Sweden and Slovakia. With only 14 regions, the car industry is in serious danger of losing many jobs, especially as the new battery plants will not always be located in the same regions as the combustion engine manufacturing facilities that are going to be shut down. If these plants do not redirect their production, they will be forced out of business. Current trends in climate-protection and green energy are based on the development of low-emission engines, and combustion engines are certainly not part of this process. Therefore, regions in which combustion engines are produced will be particularly vulnerable to redundancies.

Energy transition is a major challenge for the entire European Union. The risks that individual regions will face can be seen in the short, medium and long-perspectives. The short-term

perspective particularly concerns mining regions in which the workers are employed in the mining industry. In the medium and long-term perspectives, the risks relate to all the other sectors that will be affected by the transition, i.e. the automotive, chemical, steel and many other sectors. The scale and scope of the necessary changes will be so extensive that at present, it is difficult to determine which sectors will suffer the most.

The above risks were identified on the basis of quantitative assessments. More detailed data can be found in the reports by the member states of the European Semester, which provide numerous criteria and detailed data on individual regions (Cameron et al. 2020).

## 4. Research

The research carried out between 15 and 20 February 2022 on a research sample of 120 people aged 25–60 and coming from different regions of Poland (including coal regions) yielded the following responses to the survey questions.

The answers to the question: “Should Poland follow the accelerating climate and energy trends in the European Union that are aimed at reducing greenhouse gas emissions?” (Fig. 2) were as follows: more than half of the respondents chose “definitely yes”, 27% of answers were “rather yes”, while the remaining respondents chose: “difficult to say” – 8%; “rather not” – 3%; and “definitely not” – 3%. Such a distribution of answers confirms the findings of

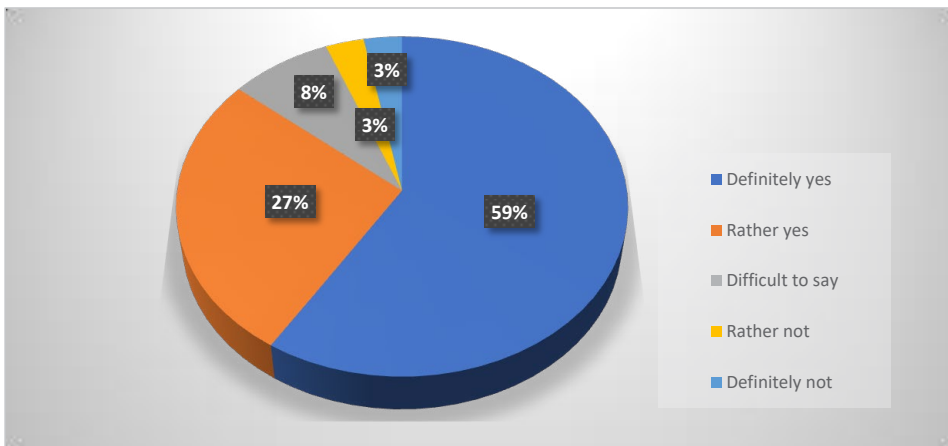


Fig. 2. Should Poland follow the accelerating climate and energy trends in the European Union that are aimed at reducing greenhouse gas emissions?

Source: own elaboration

Rys. 2. Badanie dotyczące podążania za trendami klimatyczno-energetycznymi Unii Europejskiej

the existing research which have revealed that a considerably larger part of the society believes that Poland should participate in the transformation leading to the reduction of greenhouse gases.

As regards the opinion of respondents on the decommissioning of mines and the reduction of the amount of coal used in the economy (Fig. 3), over 3/4 of the respondents answered affirmatively (“definitely yes” or “rather yes”) to closing the mines and reducing the use of coal in the economy. The remaining answers were: “difficult to say” – 12%, “rather not” – 3%, and “definitely not” – 3%. The findings of the survey clearly show that Poles are willing to participate in the energy transition, despite the cost of closing the mines and abandoning the further use of coal in the economy.

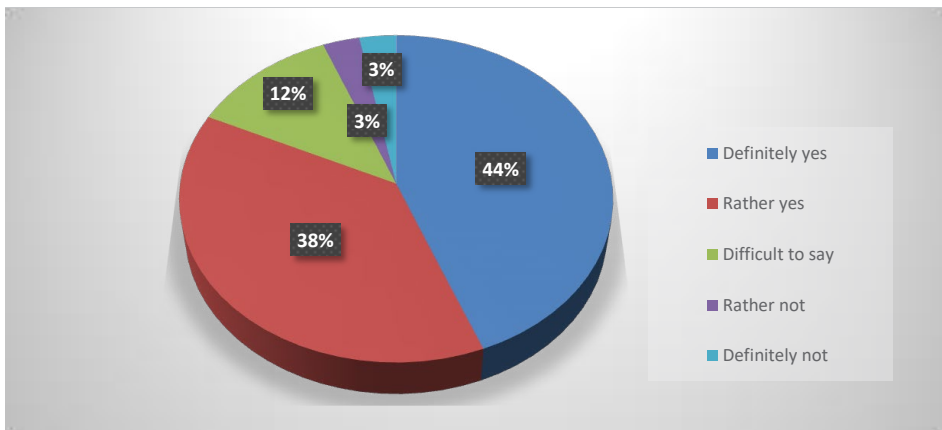


Fig. 3. Are you in favour of closing the mines and reducing the amount of coal used in the economy?

Source: own elaboration

### Rys. 3. Badanie dotyczące likwidacji kopalń i redukcji węgla w gospodarce

The development of renewable energy sources is an inherent topic in the discussion of Poland's energy transition until 2040 (Fig. 4). As many as 80% of respondents were strongly in favor of developing renewable energy sources, with almost 16% of respondents choosing the answer “rather yes”. Only 2% of respondents answered “difficult to say” and the same number of respondents chose “definitely no”. This survey shows how much Poles appreciate renewable energy sources. Only a few years ago, these indicators looked different. Nowadays, the vast majority of communities are aware of the ongoing climate change and the necessity to take active measures to stop them.

The question concerning the development of nuclear power divided the respondents (Fig. 5). More than half of the respondents were in favor of the development of nuclear power, answering “definitely yes” and “rather yes”. However, a considerable proportion of the respondents (20%) were unable to decide. The distribution of the remaining answers was as follows: “rather not” – 13% and “definitely not” – 8%. The survey has shown that the issue of nuclear energy is not very

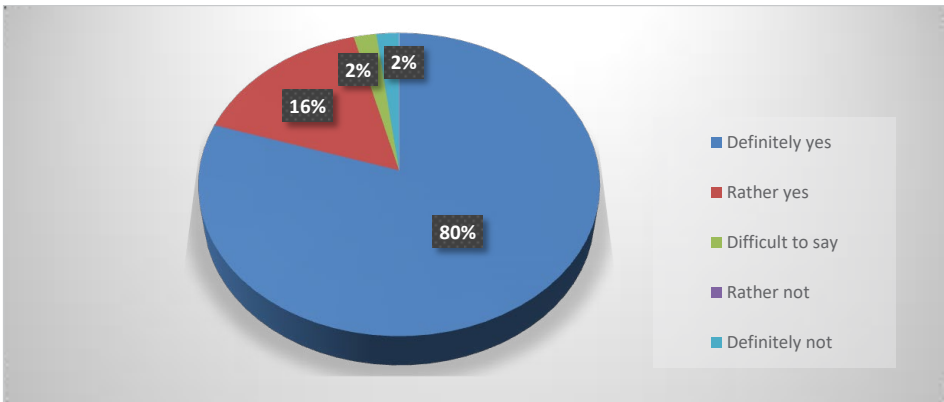


Fig. 4. Are you in favour of developing renewable energy sources?  
Source: own elaboration

Rys. 4. Badanie dotyczące rozwoju odnawialnych źródeł energii

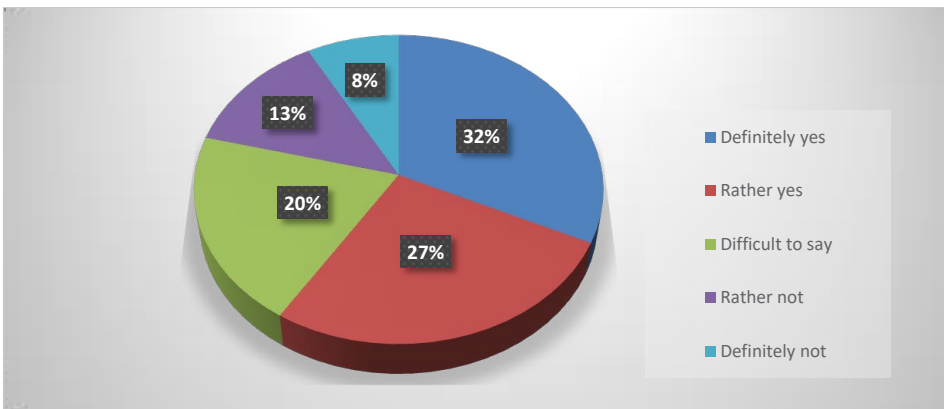


Fig. 5. Are you in favour of developing nuclear power?  
Source: own elaboration

Rys. 5. Badanie dotyczące rozwoju energetyki jądrowej

popular with the general public, which means that awareness of the matter remains low. That is why such a high proportion of respondents chose the option “difficult to say”.

A total of 45% of the respondents believed that creating new industries and providing additional jobs in the regions most affected by the negative effects of the energy transition will be of satisfactory help (Fig. 6). However, 37% of the respondents had difficulties in answering this question, while almost 1/5 of the respondents thought it would not be enough (15% and 3% chose “rather not” and “definitely not”, respectively). The survey has revealed that the public has limited confidence in the proposed solutions, which explains the prevalence of hesitant answers.

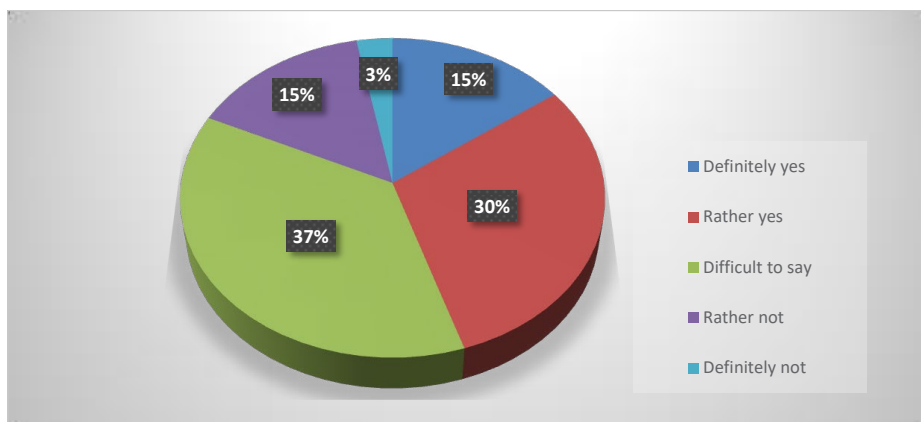


Fig. 6. Do you think that creating new industries and providing additional jobs in the regions most vulnerable to the energy transition (coal regions), will be enough help?

Source: own elaboration

Rys. 6. Badanie dotyczące rozwoju nowych gałęzi przemysłu w regionach najbardziej dotkniętych negatywnymi skutkami transformacji energetycznej

Of all respondents, 38% thought that creating 300,000 new jobs would not solve the unemployment problem (Fig. 7) and 32% found it difficult to give a definite answer. It is important to note that only 7% of respondents strongly believed that that would be enough. In contrast, 5% of respondents were fully convinced that new jobs would not solve the unemployment problem.

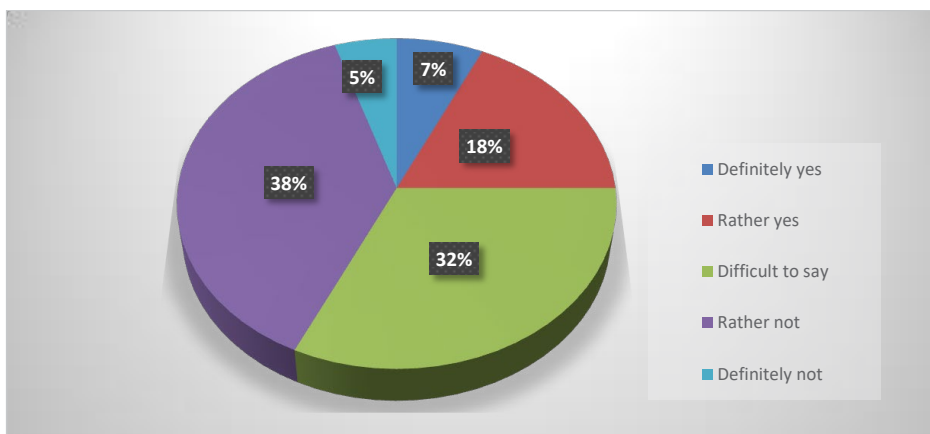


Fig. 7. Do you think that the creation of 300,000 jobs announced by the government will solve the employment problem among workers living in the regions most affected by the negative effects of the energy transition?

Source: own elaboration

Rys. 7. Badanie dotyczące wpływu utworzenia 300 tys. nowych miejsc pracy na problem zatrudnienia w regionach węglowych

It might have seemed that the respondents would overwhelmingly agree that the number of 300,000 new jobs would solve the job loss problem in the regions most affected by the adverse effects of the energy transformation. However, the respondents did not positively perceive the government’s declaration. The survey result was probably affected by weakening confidence in the Polish government and the past problems with securing employment after the closure of hard coal mines.

When asked: “*What is the biggest barrier to Poland’s energy transition?*” (Fig. 8), 57% of the respondents chose the answer that the reason was the loss of jobs in the mining industry, a worsening economic situation and increased unemployment, as well as the high costs of carrying out the energy transition. A half of the respondents indicated that it was the lack of awareness of the need for a green transition that continued to be one of the main barriers. Also, 45% of respondents believed that the problem is predominantly coal-based energy. According to 42% of respondents, this was due to poorly developed infrastructure for obtaining energy from RES, while 40% believed that people were still convinced that coal was indispensable for satisfying Poland’s energy demand.

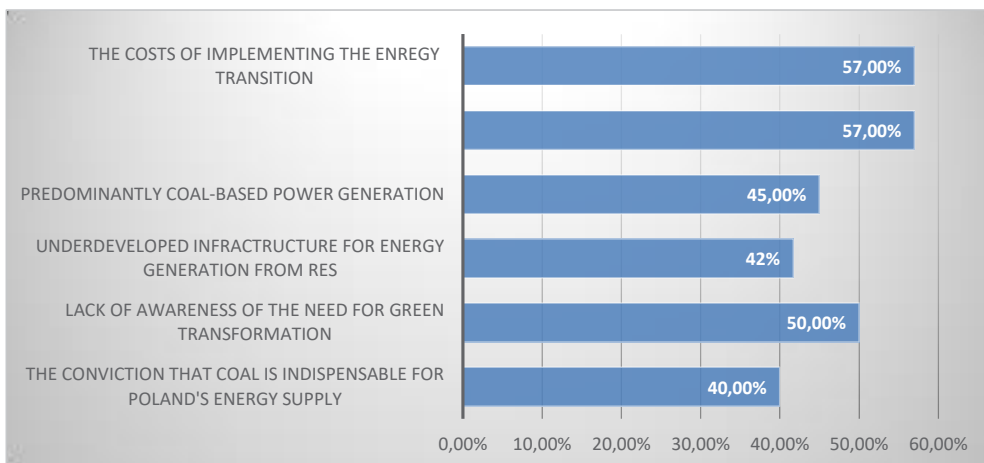


Fig. 8. What is the biggest barrier to Poland’s energy transition? (multiple choice)  
Source: own elaboration

Rys. 8. Badanie dotyczące barier w przeprowadzeniu transformacji energetycznej Polski

The study has revealed that completing Poland’s energy transition is a complex challenge and requires tackling many of the barriers that hold back the green transition.



## Summary

A just transition is a key pillar in Poland's energy transition until 2040. Moving towards a low-carbon energy system will only be possible if new development opportunities are first provided to the most vulnerable communities and regions. Without this assistance, many regions will be left behind, with growing economic problems and high unemployment rates. The challenges faced by central government, local governments, businesspeople and workers, and how these challenges are dealt with will have a significant impact on Poland's green economy for decades to come.

The planned energy transition will lead to job losses, particularly in the mining industry. Many existing jobs in the high-carbon sector (i.e. automotive, chemicals, steel and others) are awaiting a major transition to become low- and zero-carbon industries. Only through such measures will it be possible for them to continue operation and retain the existing employment.

With a whole series of changes awaiting our country, it is optimistic to think that Poland is not alone in this effort. The process of energy transition is a challenge for the whole of the European Union, and all the Member States need to participate in it – only then will the objective of climate neutrality be achieved. The European Community will not overlook those countries where the transition will be highly advanced and the costliest, thus Poland, next to Germany, will be the greatest beneficiary of the EU transition fund.

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## Sprawiedliwa transformacja – aspekty prawne, ekonomiczne i społeczne z analizą przeprowadzonych badań

### Streszczenie

W artykule omówiono zagadnienie sprawiedliwej transformacji oraz przedstawiono ogólne kierunki transformacji energetycznej Polski do 2040 roku. W artykule podjęto próbę omówienia prawnych, ekonomicznych i społecznych aspektów planowanych zmian.

W kolejnej części opracowania opisano sprawiedliwą transformację z poziomu Unii Europejskiej. Wskazano, przed jakimi wyzwaniami stoją kraje członkowskie i jakie działania będą musiały podjąć, aby sprostać wymogom transformacji wyznaczonym przez europejski cel neutralności klimatycznej do 2050 roku.

W przedostatniej części omówiono badania przeprowadzone w dniach 15–20 lutego 2022 r. na grupie 120 osób mieszkających w różnych regionach Polski. Celem badania było sprawdzenie poglądów respondentów na temat realizacji transformacji energetycznej mającej na celu ograniczenie emisji gazów cieplarnianych. Ponadto, aby dowiedzieć się, jak oceniają oni ideę rozwoju energetyki jądrowej, rozwoju odnawialnych źródeł energii, likwidacji kopalń oraz jak transformacja energetyczna wpłynie na rynek pracy w regionach węglowych. Wyniki badania wskazują, że znaczna część respondentów uważa, że Polska powinna uczestniczyć w transformacji mającej na celu redukcję gazów cieplarnianych, nawet kosztem likwidacji kopalń. Podobnie większość z nich popiera rozwój odnawialnych źródeł energii.

Celem niniejszego artykułu jest wypełnienie luki badawczej w zakresie aspektów ekonomicznych, prawnych i społecznych sprawiedliwej transformacji. Dotychczasowe opracowania jedynie pobieżnie odnoszą się do wymienionych aspektów. Dlatego też podjęto próbę wypełnienia przedmiotowej luki i udzielenia odpowiedzi na pytania – jak skutecznie realizować sprawiedliwą transformację, przy użyciu jakich narzędzi prawnych oraz jaki będzie ona miała wpływ na naszą gospodarkę i społeczeństwo.

**SŁOWA KLUCZOWE:** polityka energetyczna Polski, sprawiedliwa transformacja, niskoemisyjna transformacja energetyczna, odnawialne źródła energii

