SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2023
ORGANIZATION AND MANAGEMENT SERIES NO. 172

ANALYSIS OF THE COMPATIBILITY OF THE DEVELOPMENT OF AGRICULTURAL BIOGAS PLANTS WITH POLAND'S ENVIRONMENTAL POLICY

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Purpose: The purpose of the article is to analyse and evaluate the compatibility of the development of agricultural biogas plants with Poland's environmental policy, particularly with regard to the promotion of RES use locally.
Design/methodology/approach: The article focuses on a selected issue in the field of organization and shaping sustainable development policy. Inductive and deductive reasoning, descriptive and monographic methods were used to process the collected data. The research methodology was based on statistical measures of structure and change over time.
Findings: The development of biogas plants in Poland is in line with the country's environmental policy, which focuses on increasing the share of renewable energy sources in electricity and heat production and reducing greenhouse gas emissions.
Practical implications: The presented study can help economic entities to make effective decisions regarding environmental protection and development of RES.
Social implications: The analysis presented can help in the process of identifying the benefits of the development of agricultural biogas plants, not only for the environment, but also as an element stimulating economic development on a local and regional level.
Originality/value: The presented study is a new concept for the interpretation of Poland's environmental policy in the context of supporting the development of renewable energy sources (RES) from the perspective of sustainable development.

Keywords: renewable energy sources, agricultural biogas plants, environmental policy, sustainable development.

Category of the paper: Research paper.

1. Introduction

Observations of the socio-economic environment indicate that the Polish government's policy towards renewable energy sources (RES) has become an important issue in recent years, in both regional and local contexts. Poland is still one of the largest producers of energy from coal (according to the Central Statistical Office CSO, 2021, the share of coal in electricity production in Poland was over 72%), is noticeable but increasing the share of RES in the energy mix is becoming increasingly urgent due to climate challenges and European Union requirements. According to data from the Energy Market Agency (Energy Market Agency, 2023), by October 2022, RES in Poland generated 31,320 GWh, an increase of 125% compared to 2021 (24,928 GWh). In contrast, the Energy Forum, in its latest report Energy Transformation in Poland (Transformation Report, 2023), indicates that the share of renewables in the energy mix has fallen to around 17%, despite a record production from these sources of 30 TWh (Figure 1).

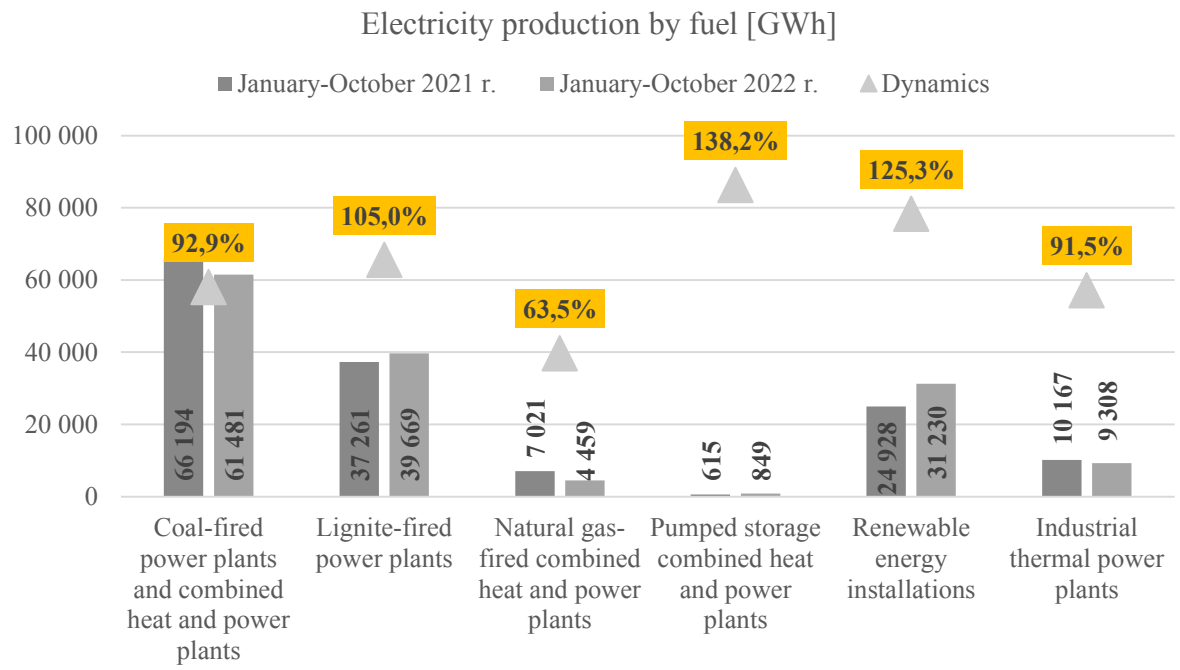

Figure 1. Electricity generating capacity of Renewable Energy Sources installations in Poland in 2022 [MW].

Source: Energy Market Agency. Retrieved from: http: //www.are.waw.pl, 12.04.2023.

Available reports and studies emphasize that in terms of renewable energy capacity, solar PV remains in first place. The increase in photovoltaic generating capacity is more than 170% higher than in 2021 (Figure 2).

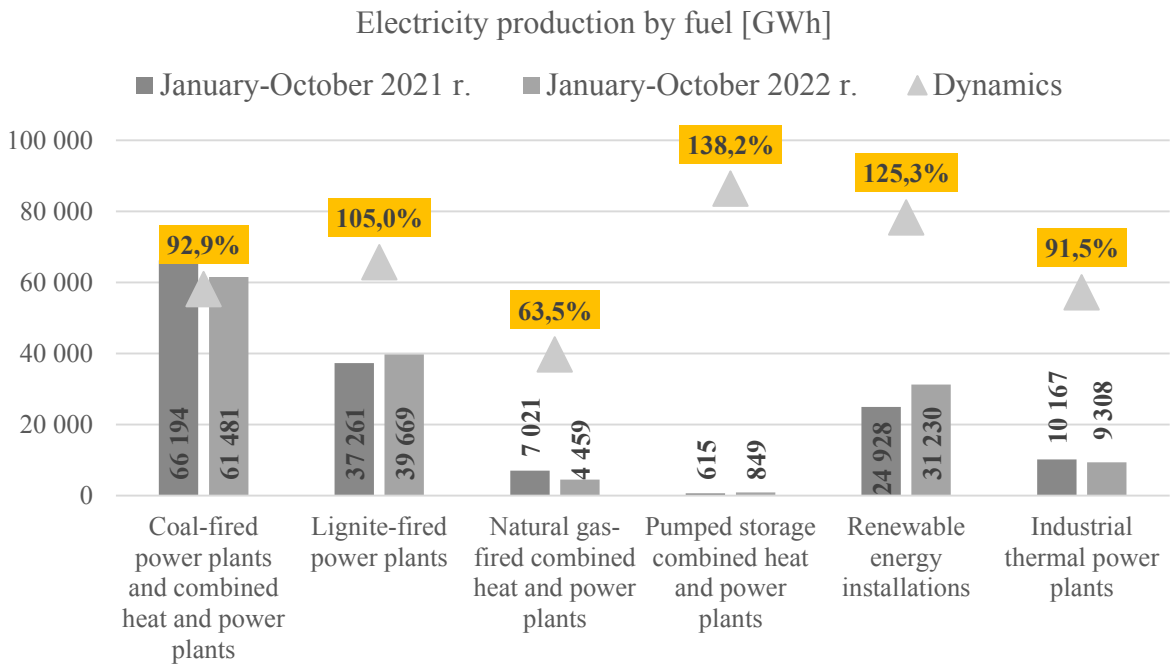

Figure 2. Electricity production by fuel [GWh] in Poland in 2022.

Source: Report Energy Transformation in Poland, Edition 2022 (2022). Energy Forum, Analysis and Dialogue.

However, despite the introduction of various forms of support, including feed-in tariffs, the number of RES investments in Poland is still low compared to other EU countries. (European Environmental Agency, 2020). As a member state of the European Union, we are obliged to comply with the provisions of the European Climate Package, which provides for a reduction in greenhouse gas emissions of at least 40% by 2030 compared to 1990 levels (Directive, 2009). Hence, Poland has introduced a number of legal regulations that implement the emission reduction targets set by the European Union. Among them, it is worth mentioning the amendment to the Environmental Protection Law, also known as the Anti-Smog Law, which, among other things, gives local governments the possibility to introduce restrictions or prohibit the operation of installations where fuel is burned and the types and quality of fuels allowed to be burned (Anti-Smog Law, 2015, p. 1) Undoubtedly, Poland's energy targets are one of the most important topics in the energy and climate policy debates in the country. In 2019, Poland adopted the National Energy and Climate Plan (NERP, 2019) for 2021-2030. The document sets out energy targets, including:

- Increase the share of RES in final energy consumption to at least 23.3% in 2030.
- To increase the share of liquid biofuels and biogas in transport to at least 14% in 2030.
- To increase energy efficiency by 27.5% compared to the level achieved in 2007.

In the following years, the Polish government presented a new energy policy for Poland until 2040 (PEP, 2021), which takes into account Poland's energy goals and the provisions of the climate package. One of Poland's main energy goals according to this document is to reduce greenhouse gas emissions into the atmosphere. To this end, the Polish government plans to

develop the renewable energy sector, which is much more environmentally friendly. According to the strategy plan, it is planned to achieve a 23% share of RES in final energy consumption by 2030. Another Polish energy objective is to ensure the country's energy security. Poland's energy policy plans for Poland to be an energy-independent country by 2040, meaning that it will be able to secure its energy supply in the event of an emergency or lack of supply from abroad. At the same time, the main objective of Poland's energy policy is now to gradually reduce greenhouse gas emissions, in line with its obligations under the Paris Agreement (Paris Agreement, 2015). Poland adopted a target to reduce CO2 emissions by 30% in 2030, compared to 1990 levels, and to increase the share of RES in energy production to 21% in 2030.

According to some experts (Mazurek-Czarnecka et al., 2022), in order to accelerate the development of RES, the government should take more ambitious targets for the share of RES in the energy mix and introduce long-term investment plans that will create a stable market for RES producers and investors. According to the report Poland's energy transition path prepared by the Polish Electricity Committee (Report Poland's Path, 2022), in Poland RES are recognised as an important element of energy policy, however they still represent a small percentage of energy generation. Therefore, the report recommends increasing the share of RES in Poland's energy mix to 23-27% in 2030, up to 32-34% in 2040. On the other hand, the results of an audit carried out by the Supreme Chamber of Control, regarding the development of renewable energy sources (Barriers Report, 2021), indicate that the Polish government's RES policy is not effective enough. The authors of the report point out that support for RES in Poland is less favourable than in other EU countries. They point to limited possibilities of financing investments by entrepreneurs, legal regulations on support, administrative-procedural difficulties and problems with the functioning of transmission networks as the main barriers to the development of renewable energy. However, several researchers have taken notice that agricultural biogas plants may become a significant component of Poland's new energy order (Mamica et al., 2022), under the location of new facilities in places with easier access to substrates, including all types of usable waste. It should also be noted that one of the main challenges of optimising biogas production is to achieve high efficiency (methane yield) and system stability with low susceptibility to disturbances (Westerholm et al., 2018; Bensmann et al., 2016). Therefore, there is a need for a better understanding of the causes and effects of process instability and disturbances, especially the response of the biogas microbiome, in order to avoid them (Theuer et al., 2019). The need to remove development barriers and ensure stability in the area of investment process regulation is also pointed out by the authors of the report (Polish Energy Report, 2022), stressing at the same time that Poland is currently in a good moment for the development of biogas energy.

There is no doubt that increasing the share of RES in Poland's energy mix is needed, both from an environmental and a technological development perspective. Government policy should be conducive to this process.

The energy transition towards more sustainable energy production can be accelerated by private investors, who play a key role in the development of renewable energy sources (RES) including biogas plants. Their involvement can also improve the country's energy security. However, investments in RES tend to be costly and require a long-term commitment, which in turn poses a number of challenges and risks for investors (Ligus, 2009). One of the challenges for private investors in RES is regulatory uncertainty, including changes in government policy and tax and legal regulations. Therefore, it is important for the government and regulators to act in a predictable manner and ensure stability in RES support policies. Another challenge for private investors in RES is access to finance. In order to attract private investors to the RES sector, the governments of other European countries introduce various financial support mechanisms, such as preferential loans, subsidies, tax reliefs. Another important factor influencing private investors' decision to invest in RES is cost-effectiveness. The introduction of new technologies and the reduction of RES energy production costs have made some projects more competitive. However, in some cases, the cost of investing in RES may still exceed the cost of investing in traditional energy sources. In this case, local and self-government authorities should use various support mechanisms to increase the cost-effectiveness of investments in RES.

The analysis of the available literature on the subject showed that there is a lack of research on the new concept of interpreting Poland's environmental policy in the context of supporting the development of renewable energy sources (RES) from the perspective of sustainable development. In particular, regarding the role of the biogas plant in this process. Therefore, the presented research complements the gap in the literature on the subject and constitutes a new approach to energy transformation plans.

Bearing in mind that the purpose of the article is to analyze and assess the compliance of the development of agricultural biogas plants with the environmental policy of Poland, in particular in the field of promoting the use of renewable energy sources at the local level. The article itself has many important political, organizational and practical implications. The article was organized as follows. Chapter 2 describes the local dimension of the development of agricultural biogas plants. In turn, chapter 3 discusses and presents the development of biogas plants in the context of the state's environmental policy. On the other hand, in chapter 4 conclusions are presented and a discussion is started - indicating and identifying the benefits of development agricultural biogas plants not only for the environment, but also as an element stimulating economic development local and regional level. At the same time, it indicates problem areas for Poland's environmental policy in the context of supporting the development of renewable energy sources (RES) from the perspective of sustainable development.

2. Local dimension of the development of agricultural biogas plants

Observations of the market reality indicate that the use of renewable energy resources in the form of biomass from agricultural or agri-food production makes it possible to achieve an appropriate level of energy security locally. For the proper development of rural areas, it is essential to rely on stable energy sources and to be independent of external suppliers. Development from a local perspective is the primary objective of each local government unit striving to improve the living conditions of its inhabitants, while maintaining rational management of the local resources at its disposal (Orłowska, 2018, p. 45). Thanks to the use of the advantages of own factor resources (e.g. natural or infrastructural), it is treated as a stimulator of the development of localities, communes, or a combination of several communes (Blakely, 1989; Parysek, 2001; Brol, 1998; Sekuła, 2004). L. Wojtasiewicz defines local development as a complex qualitative transformation that covers a specific area in terms of the level and quality of life of its inhabitants. More generally, it is a phenomenon of positive changes of a quantitative nature and progress of a qualitative nature, in accordance with the needs of the local community and their hierarchy of values and needs (Wojtasiewicz, 1996, pp. 13-14). A similar approach was presented by R. Brol (1998, pp. 10-11). One of the courses of action on both the local and regional side is the pursuit of sustainable development, and therefore the management of public issues requires that a set of commonly accepted values be adopted and respected, influencing the decisions that are taken by local authorities (Domański, 2000, p. 14). Local and regional authorities play an important role in the implementation of the sustainable development agenda, as they are responsible for the maintenance and care of technical infrastructure facilities, e.g. municipal management and water supply. The list of activities of local authorities that contribute to improving the attractiveness of an area can include a wide range of undertakings - e.g. concerning: promotion, marketing, financial support and land management. Similar activities should be carried out at the regional level - covering the provinces (Szewczuk, 2010).

As pointed out by one of the researchers the construction of biogas plants stimulates economic development and creates favourable conditions for local entrepreneurship. Such facilities contribute to the creation of new jobs and contribute to the local gross product (Obrycka, 2014). Considering the financial aspect, the possibility of generating income for the municipality's budget through the payment of taxes by the biogas producer is important. In addition, biogas plants can provide an image element for the locality as a new technology-friendly area. Investments in biogas plants can also benefit local manufacturers of machinery and equipment, local shops offering plant protection products or fertilisers used in biomass production (Kowalczyk-Juśko, 2007-2013, p. 76).

In today's market reality the biomass is one of the most important feedstocks used in renewable energy production. In Poland, according to data from the end of 2021 (CSO, 2021), biomass accounted for approximately 57% of the total installed RES capacity. It is also used to produce heat and biofuels. In 2021, around 95% of RES heat in Poland was produced from biomass. Therefore, it can be said that biomass plays a key role in the Polish RES sector and is an important part of the energy transition. There has been a significant development of agricultural biogas plants in Poland between 2016 and 2020. According to data published by the National Agricultural Support Centre (KOWR, 2023), the number of installations included in the register of agricultural biogas producers has increased from 8 in January 2011 to 116 in 2021 (Table 1).

Table 1.
Number of entities entered in the register of agricultural biogas producers between 2011 and 2021

Number of entities registered in the register of agricultural biogas producers as at										
1 of January 2011r.	1 of January 2012r.	1 of January 2013r.	1 of January 2014r.	1 of January 2015r.	1 of January 2016r.	1 of January 2017r.	1 of January 2018r.	1 of January 2019r.	1 of January 2020r.	1 of January 2021r.
4	10	21	35	50	69	84	86	85	93	99
of which, number of installations included in the register of agricultural biogas producers										
8	16	28	42	58	78	94	96	96	103	116

Source: National Agricultural Support Centre Report, 2022.

The increase in the number of installations included in the agricultural biogas register was mainly due to increasing urbanisation, which prompted farmers to seek alternative sources of income, as well as growing environmental awareness and the need to reduce greenhouse gas emissions. Between 2016 and 2020, Poland had the highest number of agricultural biogas plants in the western provinces, such as Wielkopolska, Lower Silesia, Lubuskie and Zachodnio-pomorskie. The Mazowieckie and Łódzkie provinces were second in terms of the number of biogas plants, and the Kujawsko-Pomorskie and Wielkopolskie provinces were third. Biogas plants in Poland are covered by various strategic documents that define the directions of development of renewable energy, including biogas production. The most important of these documents are presented below:

1. The National Recovery and Resilience Plan (NERP, 2022) - a strategic document that sets out the priorities and objectives of Poland's investment policy after the COVID-19 pandemic. Among other things, the NERP provides for the financing of projects related to the expansion of renewable energy installations, including biogas plants.
2. The National Energy and Climate Plan 2021-2030 (NERP, 2019) - a strategic document that sets out goals and objectives for the development of RES until 2030, including biogas production. The SOZE 2030 includes, inter alia, targets related to the development of agricultural biogas plants and increasing the share of biogas in the fuel mix.

3. The Operational Programme Infrastructure and Environment 2014-2020 (OPI&E) and the Programme European Funds for Infrastructure, Climate, Environment 2021-2027 (OPI&E, 2014) - strategic documents that set out priorities and objectives for investments in infrastructure and environmental protection. Among other things, these documents provide for the financing of projects related to the production of energy from renewable sources, including biogas plants.
4. The National Strategy for Regional Development 2030 (NSRD, 2019) - a strategic document that sets out goals and objectives for the development of Poland and the voivodeships until 2030. Among other things, the 2030 Strategy provides for the development of energy production from renewable sources, including biogas plants.

Support programmes, such as the Rural Development Programme (RDP, 2014-2020), which provided for the financing of investments related to energy production from renewable sources, including biogas plants, were also an important factor influencing the development of agricultural biogas plants in Poland. At this stage of summaries, it is also necessary to mention the perspective of the EU and the private sector, which more and more often seeks co-financing for this category of investments.

3. Biogas development and national environmental policy

Polish ecological policy prioritises the development of RES, including biogas plants, as a key element in achieving environmental protection goals and improving the quality of life of the country's inhabitants. The implementation of investments in the construction of biogas plants contributes to the sustainable development of the country and the improvement of air quality, which is in line with the objectives of Poland's ecological policy. The construction of biogas plants also allows the efficient use of different types of organic waste, such as plant residues, slurry or sewage, to produce biogas, which is a fully renewable energy source. The use of biogas in place of traditional fossil fuels contributes to the reduction of greenhouse gas emissions, which is in line with Poland's climate policy objectives.

As mentioned above, the implementation of biogas plant investments contributes to the sustainable development of the country The most widespread definition of sustainable development is that derived from the report Our Common Future (Report, 1991), which states that sustainable development is development that ensures that the needs of the present generation are met, without compromising the ability of future generations to meet their own needs. Thus, sustainable development is striving to improve the quality of life while maintaining social equity, biodiversity and abundance of natural resources. The pursuit of improving one's own quality of life, however, cannot take place while condemning others to poverty (Gerwin, 2008). European policy on sustainable development, including environmental

sustainability, is based on the provisions of the Rio Declaration signed in 1992 (Declaration, 1992), whose main objective is to implement Agenda 21. The Global Programme of Action, popularly known as Agenda 21 (Agenda, 1992), is a comprehensive document based on the 27 principles of the Earth Charter. It contains a set of recommendations and courses of action that should be taken for sustainable development in local life in the perspective of the 21st century. Implementing the principle of sustainable development is based on combining political, economic, social and individual actions to balance the environmental access opportunities of individual societies and their citizens - both present and future generations.

The principle of sustainable development has been elevated to the status of a constitutional principle in Poland. The Constitution of the Republic of Poland in Article 5 (Constitution, 1997) provides for the protection of the environment guided by the principle of sustainable development. The principles of eco-development have become the basis for the nationally implemented document adopted by the Sejm of the Republic of Poland, „National Ecological Policy 2030" (PEP, 2019).

Therefore the development of agricultural biogas plants is in line with the principle of sustainable development. The construction of agricultural biogas plants contributes to the preservation of the abundance of natural resources and thus to the reduction of natural resource depletion. Substrates that can be used in installations include potato pulp, vegetable substrates (maize silage and other green biomass) and animal manure. Other products, such as post-boiler stock and bakery waste, may also be used. In addition, reducing carbon emissions prevents environmental degradation, so that the needs of the present generation can be met without compromising the ability of future generations to meet their needs. The realisation of investments in the development of biogas plants in terms of preserving biodiversity fulfils the principles, as well as the objectives, of Poland's ecological policy. The production of energy in a biogas plant reduces the exploitation and combustion of fossil non-renewable energy sources, as well as prevents environmental degradation by reducing carbon dioxide emissions and thus fulfils Poland's obligations to increase the share of energy from renewable sources.

Linked to sustainable development is environmental policy. From the changes in EU programmes and priorities, it can be concluded that it stems precisely from harmonious and sustainable development.

Environmental policy is state interference towards achieving environmental protection and sustainability goals, which will only function properly with the operation of market mechanisms. In 2013, a decision of the European Parliament and of the Council on a general EU programme of action up to 2020, the so-called „Good quality of life within the limitations of our planet" programme, was adopted (Decision, 2013, p. 171). The adoption of the programme commits the Union institutions and the Member States to undertake tasks and actions to support the achievement of the Seventh Programme's priority objectives.

It obliges public authorities to cooperate with businesses, social partners, European society and citizens in implementing the programme.

The Seventh Programme includes a vision for 2050, in which citizens are assumed to enjoy a good quality of life. The goal should be achieved while taking into account the ecological limitations of the planet. The objectives of the Environmental Policy resulting from this programme are primarily:

- preserving, protecting and improving the quality of the environment,
- protection of human health,
- prudent and rational use of natural resources,
- the promotion of action at international level on regional or global environmental problems.

The above objectives should be achieved while respecting the principles of environmental policy:

- the prevention principle,
- the principle of rectifying damage at source,
- the polluter pays principle,
- the subsidiarity principle,
- sustainable development.

The development of biogas plants is in line with priority objective no. 2: „Transforming the Union into a resource-efficient, green and competitive low-carbon economy" (Decision, 2013, p. 182), as well as priority objective No. 6 „Ensure investment for environmental and climate policy and address environmental externalities" (Decision, 2013, p. 193). The implementation of this type of investment contributes to the reduction of carbon emissions and the use of local energy resources. In addition, the construction of biogas plants increases the use of renewable energy sources both locally and nationally, thus increasing Poland's competitiveness in Europe.

Preventing dangerous climate change is one of the environmental priorities for the European Union. The EU is showing great efforts to significantly reduce its own greenhouse gas emissions, while encouraging other countries and regions to do the same.

EU priorities for 2030:

- a reduction of at least 40 per cent in greenhouse gas emissions compared to 1990,
- obtaining at least 27 per cent of energy from renewable sources,
- at least a 27 per cent increase in energy efficiency.

The implementation of the biogas plant development is in line with all the objectives indicated above. The construction of an agricultural biogas plant contributes to reducing greenhouse gas emissions by limiting carbon dioxide emissions into the atmosphere (use of energy from renewable sources, limiting the use of fossil fuels - reducing pollutant and greenhouse gas emissions into the air). In addition, it contributes to improving energy security by increasing the supply of energy on renewable energy carriers produced from domestic raw materials.

The use and production of renewable energy, in this case biogas, is not only important from the point of view of meeting EU targets, but above all can and should facilitate environmental protection and provide an additional source of energy.

The implementation of the investment contributes to solving the problems of efficiency and stability of the energy supply. This results in an increase in local and, consequently, national energy security, significant development of rural areas and professional activation of farmers, increasing their income.

In addition, the development of agricultural biogas plants allows the following intermediate objectives to be achieved:

- environmental aspect: improvement of air quality in the area where the project has a close impact, as well as improvement of air quality in the whole country, maintaining resilience to climate change,
- social aspect: supporting social and economic development - the construction of a biogas plant offers the possibility of creating new jobs, increasing the attractiveness of the region, being seen as an attractive region for potential investors, being open to new technologies. This makes it possible to combine the production of energy from biogas with science and education, and in the future with tourism,
- in terms of the economy: leading to energy independence, utilising local energy resources.

The implementation of biogas plant projects also contributes to compliance with the precautionary principle and the preventive action of the environmental policy.

The precautionary principle obliges the institution or person who intends to undertake certain activities to prove that its activities will not cause a risk to the environment. Where it is not possible to demonstrate that there is no risk to the environment, action must be taken to protect the environment.

The principle of the application of preventive action implies the need to consider the potential effects of a specific action and to take preventive action on the basis of this analysis. The principle of prevention is confirmed in all EC Action Programmes and is prioritised in many pieces of environmental legislation. Examples of its application are the provisions on the environmental impact assessment of projects and plans and programmes.

The pollution prevention principle, i.e. elimination of pollution at source, means that when selecting measures to prevent and eliminate the effects of pollution, actions should be evaluated according to the following hierarchy:

- avoidance of pollutant generation (modern technologies producing minimal amounts of pollution),
- recirculation - closing the cycle of materials and raw materials, recovering energy, water and raw materials from waste, waste water and waste gases,
- pollution neutralisation - treatment of waste water, waste gases, neutralisation and storage of solid waste.

The implementation of this principle comes down to the promotion of low-carbon, environmentally friendly technologies, reducing the use of traditional raw materials and energy-intensive areas of farming. The 'polluter pays' principle means that those who cause environmental damage should bear the full costs of those activities that are necessary to remove the pollution or the costs of equivalent activities to achieve environmental protection objectives. According to this principle, users of infrastructure facilities should contribute both to the costs of abatement and to the costs of operating, maintaining and replacing the infrastructure components having an impact on the environment.

Pursuant to paragraph 2 of Article 71 of the Act on providing information on the environment and its protection, public participation in environmental protection and environmental impact assessments of 3 October 2008 (Dz.U. of 2008, item 1405, 1566, 1999), obtaining a decision on environmental conditions is required for planned:

- projects which may always significantly affect the environment,
- projects which may potentially significantly affect the environment.

In accordance with §3, sec. 1, item 80 of the Regulation of the Council of Ministers of 9 November 2010 on projects which may significantly affect the environment (Journal of Laws of 2010, item 71), investments in the construction of biogas plants are qualified as projects which may potentially significantly affect the environment, for which the obligation to prepare a report may be required. In accordance with Article 71(2)(2) of the Act of 3 October 2008 on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessments (Journal of Laws 2017, item 1405), hereinafter referred to as the EIA Act, it is a project for which a decision on environmental conditions is required. In the case of an amendment to the decision on environmental conditions of consent for the implementation of the project, the provisions of Article 87 of the aforementioned EIA Act shall apply.

4. Discussion and Conclusions

The referenced documents emphasize that the Polish Energy Policy for 2021-2030 assumes an increase in the share of RES in the country's energy mix to 23.5% by 2030. This climate pressure is dictated by three basic premises. The first of them are regulations that in the

EU region are related to the implementation of the idea of the European Green Deal - the construction of a climate-neutral continent by 2050. The idea of radical reduction of greenhouse gas emissions and compensation of remaining emissions through solutions or reconstruction of ecosystems supports, among others, CSRD (Corporate Sustainability Reporting Directive), strengthening the requirements for reporting sustainable development by all participants of the modern market, both in the economic and social dimension.

Another determinant is the changing rules for financing investments, placing more and more emphasis on supporting the green and digital economic transformation and introducing exemptions that make it difficult or even impossible to obtain funds from the market for investments in energy from fossil fuels. This trend is favored by the European Union's policy, which creates a framework for facilitating sustainable investments in the common EU energy market in the regional and local dimension. The last, no less important element of the ongoing changes is civic and consumer activism. This process is characterized by a wide range of activities: from new ecological movements that stimulate (not only) people from the millennial generation to act, to the activism of shareholders and entire entities demanding better integration of social and environmental aspects with the business model of the company. The impulse for action is the scientific reports of the IPCC (Intergovernmental Panel on Climate Change), which clarify the consensus on climate issues and indicate the necessary changes in the functioning of the global economy and individual countries, such as Poland.

Therefore, according to the authors, one of the ways to fit into these trends may be the development of local biogas plants, which, among others, enable the production of both electricity and heat. This is supported not only by the mentioned increase in the number of installations, but also by biogas producers in rural areas. The documents indicated by the authors clearly emphasize that the Polish environmental policy is aimed at reducing greenhouse gas emissions and counteracting climate change. According to the authorities, biogas plants are part of this trend, which contribute to the reduction of greenhouse gas emissions by using organic waste that would otherwise end up in landfills and emit methane that is harmful to the environment. The authors postulate that the well-thought-out development of local networks of biogas plants will allow Poland to increase energy independence by generating energy from domestic sources, which will certainly bring the measurable economic and social benefits indicated by the authors, which are also directly in line with the idea of sustainable development. The presented considerations also pointed to the practical dimension of the scientific discussion in this area. Emphasizing that Poland's energy policy requires greater government involvement in legislative processes and issues related to financing investments in the area of RES development. At the same time, strengthening the role of biogas plants in the local or regional dimension, and not energy from photovoltaics, as so far.

The presented research focused on the analysis and assessment of the compliance of the development of agricultural biogas plants with the Polish environmental policy, with particular emphasis on the promotion of the use of RES at the local level. The research methodology was

based on statistical measures of structure and changes over time, excluding economic aspects. Against the background of scientific considerations, the question should be answered whether such a model of behavior can be a new concept for interpreting Poland's environmental policy in the context of supporting the development of renewable energy sources (RES) from the perspective of sustainable development? According to the researchers, the adoption of this vision must certainly be verified by broader analyses, in particular on a broad economic background. Including min. strategy for the development of agricultural economy and the role of biogas plants, both at the local and regional level.

To sum up, the presented research on the analysis and assessment of the compliance of the development of agricultural biogas plants with the Polish environmental policy, with particular emphasis on the promotion of the use of RES at the local level, does not fully exhaust the essence of the issue. Their verification will certainly be taken care of by the market, indicating whether biogasification will become one of the key elements of the RES development process in accordance with the assumptions of the state policy in the field of environmental protection and sustainable development.

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