

Article

Energy and Local Safety: How the Administration Limits Energy Security

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Abstract: Energy safety is multifaceted and is not limited only to nuclear plants. The research on local energy safety is not considerable. This article creates new ground by analysing the Polish local energy safety system in the cause–effect context. Consistent with an abductive approach, this paper’s insights have emerged iteratively based on the theory reviewed and the empirical case. The research aimed to determine whether the local administration negatively affected energy security and proposed preventive measures increased limited energy security. The findings show that flawed local government operations reduce local energy safety. Moreover, the State authorities did not recognise the weaknesses of the local energy safety system properly. The findings make two main contributions: first, they contribute to developing energy safety theory; and second, this article contributes to a further contextual diagnosis of the comprehensive energy system and can, in turn, be relevant for its further studies in worldwide context.

Keywords: energy; local energy safety; European energy directive; municipality; energy risk



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1. Introduction

In the era of increasing conflicts and the need to maintain constant economic growth, energy safety is of particular importance. Energy safety can be defined as the state of the economy that allows covering the current and future fuel and energy supplies in a technically and economically justified manner while maintaining environmental protection requirements. Energy safety can also be understood as the diversification of energy supply sources and ensuring the certainty of their supply at a price acceptable to society and the economy [1]. It is also the optimal use of domestic energy resources, with the simultaneous use of new technology and active participation in international environmental and energy initiatives. In the local sense, energy safety can be understood as a process aiming to meet the energy needs of local communities. Energy safety largely depends on the development and condition of the infrastructure with which electricity, heat and gaseous fuels are delivered to end-users. Concerning electricity and natural gas distribution services, one may argue for a national market for these services. Heat distribution has local character.

Many scientific studies on energy safety include different perspectives: e.g., nuclear energy safety, hydrogen energy safety, and clean energy safety [2–12]. However, little is known about local energy safety. Meanwhile, there is a need for a comprehensive analysis of legal, organizational and local energy safety management solutions, including the role of local government administration in this process.

The following research problem requires a solution: do the activities of public administration ensure local energy safety? The study made it possible to determine how the local administration coordinated activities in energy safety. Analyses conducted in Polish institutions showed that the activity of public administration did not ensure an adequate level of local energy safety, particularly in terms of covering the customers’ demand for heat and gaseous fuels and environmental protection requirements [1].

The findings have several implications for both researchers, public organisations and firms. It helps modify the management system and improve local energy safety. The paper

proceeds as follows: first, it shows the legal framework of energy safety in Poland; next, the evidence that the current system did not operate appropriately is presented fuelled by the cause–effect model; and finally, the author formulates conclusions and points out opportunities for further research.

2. Materials and Methods

Following researchers assumption that literature analysis could be a source of inspiration to create research study [13,14], the literature study, supplemented by analysis of legal requirements of Polish energy safety system, and analysis of Polish supreme audit institution's (SAI) audit report constituted the basis for researching local energy safety. The scarcity of research in this area enabled identifying a research gap and the formulation of research questions relating to the Polish local energy safety system. With the use of official documents, the study aimed at answering the following research question: do the activities of public administration ensure local energy safety? In order to answer such a question, it is necessary to obtain an answer to several specific questions: (1) are the tasks in the field of energy planning in municipalities carried out following the law and a manner ensuring the safety of electricity, heat and gas supplies to end-users? (2) Do the activities of municipalities ensure local energy safety while meeting environmental protection requirements? (3) Is the national strategy compatible with activities aimed at strengthening local energy safety? (4) Is the participation of the commune in the energy cluster an effective element of improving local energy safety?

To answer these questions, the author reviewed the Polish SAI audit report, which shows SAI's analysis of the Polish Ministry of Energy and 22 randomly selected local governments. The analysis covered the years 2015–2019 (first half). Consistent with an abductive approach [15,16], this paper's insights have emerged iteratively based on the literature reviewed and the empirical case.

3. Results and Discussion

3.1. Energy Security: The Literature Review

Worldwide energy consumption has increased rapidly, in fact almost exponentially, since the industrial revolution; and this increasing trend of energy consumption is accelerated by internal and external factors, including the improvement of the quality of life; by the industrialization of the developing nations, especially China in last thirty years; and by the increase in population in the world [17,18].

The issue of energy security is the subject of many studies [18–26]. Studies underline that energy security is an oft-discussed but rarely elaborated upon a component of environmental security and community sustainability [19,20]. Its importance has been elevated by research on the so-called food–water–energy nexus [20], but questions remain regarding what exactly constitutes energy security at the household, community, or regional level, as compared to global and national levels where energy security primarily involves whether governments have control over their energy generation and provisioning resources [21–26]. The analysis of the literature [18–30] allows for the formulation of a generalisation that energy security is perceived through the prism of reducing emissions, reducing dependence on fossil sources, diversifying energy supplies, securing energy routes, building liquefied gas tanks, modernising transmission lines or even through the prism of an economic analysis of the cities' infrastructure improvements that result in reducing the energy consumption for example by the usage of the intelligent light-emitting diode (LED) street lighting system [27]. Energy security is also understood as access to energy services by the poorest [28], or it is understood as a mechanism that limits the dominance of a single energy system. Such an apt statement is based on the assumption that such dominance mentioned above leads to excessive burden on, eventually weakening, a particular aspect of the environment and can cause environmental fatigue and failure (permanent damage) or even catastrophe. Indeed, sustainable development may be achieved with the diversification and localisation of energy sources and systems if the

adverse impact of each energy system is sufficiently small and well within the tolerance limit of the environment [18]. Finally, some authors [21] argue that energy security may ultimately prove to be an essential component of human–environmental security, in that energy influences so many different aspects of people’s lives, including food production and the distribution and treatment of drinking water.

Energy security is a hard-to-define concept, especially in a global context [20,31–33]. The literature study shows that developed countries understand energy security differently than developing countries. The researchers from the first group of countries focus on a resilient energy system and securing the amount of energy required for individuals and entities both from the public and private sector, including defence for acceptable prices. Developing countries have a differing understanding of energy security. It means enough energy supply (quantity and quality) to meet all requirements of all citizens at an affordable and stable price. It also leads to sustaining economic performance and poverty alleviation, the better quality of life without harming the environment. Furthermore, the energy security literature often focuses on energy security indicators nationwide [19,23,30,34–36], which may not be appropriate for a local community. Hossain, Loring and Marsik define energy security as “a situation in which people have reliable access to socially acceptable energy generation or provisioning services, at a level sufficient to conducting a sustainable life” [20].

The definition of energy safety aims to emphasize the role of governmental and local institutions in ensuring the protection of consumer interests, regardless of whether they are private or public entities. One may describe energy safety as the state of the economy that allows the current and future fuel and energy supplies in a technically and economically justified manner while maintaining environmental protection requirements. It can also be understood as the diversification of energy supply sources and ensuring their supply at a price acceptable to society and the economy [1]. Local energy safety can be understood as a process aiming to meet the energy needs of local communities.

3.2. The Legal Framework of the Polish Energy Safety System

In the Act of 10 April 1997, the Energy Law treats energy safety as a priority [37], and it is related to other regulations in the provisions, for example on spatial planning and development, construction law, provisions on nature protection, marine areas, public participation in environmental protection and environmental impact assessments. All these provisions create a legal system aimed at protecting energy infrastructure. Each country, including Poland, creates appropriate legal and organizational solutions to limit the risk of implementing infrastructure investments and increase energy safety. In each of these systems, a significant role is played by the reliability of energy supplies related to the capacity and organization of the power grid operation and the efficiency of managing the existing infrastructure. This assumption is the basis for the Polish system in which the production capacity is created to not exceed the amount necessary to prevent unjustified interruptions in energy supplies electricity for end-users. Moreover, the development of energy infrastructure needs to follow the National Spatial Development Concept 2030 [38]. The Polish strategy assumes a growing role in the production of energy generated in dispersed sources, mainly thanks to the potential of regional and local renewable sources. It assumes the need to develop transmission networks collecting energy generated in various sources, including diffuse. Like any other European Union Member State, the energy policy of Poland must comply with Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006, on measures to ensure the safety of electricity supply and infrastructure investments (Journal of EUL 33, 4 February 2006, p. 22, repealed on 4 July 2019). This Directive stated that the European Union Member States must require transmission system operators to maintain an adequate level of operational network safety, which is to be understood as the uninterrupted operation of the energy transmission network.

Municipalities play a significant role in the Polish energy system. Their role results, for example, from the development of distributed energy generation and grid investments.

Any commune should implement effective risk management mechanisms, and by taking appropriate decisions, they should motivate and support energy companies and residents in saving energy and protecting the environment. Energy planning in a commune is an obligation imposed by the Energy Law and allows local authorities to create a local energy policy, including local energy safety. The implementation of energy policy requires coordination and information exchange to ensure that the decisions of the commune authorities are made in the interests of its inhabitants and the sustainable development of the commune. One may positively evaluate the legal assumption included in the Energy law, that the commune's plans to supply gaseous fuels, electricity and heat should be developed for fifteen years, which would be updated every three years. It corresponds with business needs, particularly with the stability of planning and realisation of costly investment in the energy sector. The role of municipalities as entities responsible for energy planning and financing the lighting of public places and roads located on their territory is defined by the Act of 8 March 1990 on the commune government [39]. Moreover, the communes' tasks in the scope of tasks related to planning energy safety are specified in art. 18 and art. 19 of the Energy Law. For example, according to art. 19 paragraph 5 of the Energy Law, the draft of communal assumptions to the heat, electricity and gas fuel supply plan is obligatorily subject to an opinion from the regional level of local government in terms of coordination of cooperation with other communes and compliance with the State energy policy. It stabilises the entire energy system and should prevent weak coordination of tasks. Art. 18 of the Energy Law lists five specific tasks of the commune in the field of energy planning and organisation: (1) planning and organization of electricity, heat and gas supply; (2) planning the lighting of streets, squares, public places and municipal roads, except for highways and other roads to the extent specified by-laws; (3) financing of the lighting as mentioned above places; (4) planning and organization of activities aimed at rationalization of energy consumption and promotion of solutions reducing energy consumption in the area of the commune; (5) assessing the potential of electricity generation in high-efficiency cogeneration and energy-efficient heating or cooling systems in the commune's territory [1]. The analysis of the commune's tasks shows that their implementation requires excellent preparation of the employees of local government offices and the information exchange network.

The new Act of 20 May 2016 on energy efficiency [40] specifies that the public sector entity performs its tasks using at least one of the measures improving energy efficiency, which are: (1) implementation and financing of a project aimed at improving energy efficiency; (2) purchase of a device, installation or vehicle characterized by low energy consumption and low operating costs; (3) replacement of the used device, installation or vehicle with a device, installation or vehicle referred to in point 2, or their modernization; (4) implementation of a term modernization project [41]; (5) implementation of the environmental management system referred to in art. 2 point 13 of the Regulation of the European Parliament and the Council (EC) No. 1221/2009 of 25 November, 2009, on voluntary participation organization in the Community Eco-Management and Audit Scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission decisions 2001/681/EC and 2006/193/EC ((Journal of Laws UEL 342 of 22 December 2009, p. 1, and amendments); and 6) implementation of municipal low-emission programs referred to in the Act of 21 November 2008 on supporting thermo-modernization and renovation [42].

In practice, the commune—to present a reliable assessment of the supply of energy carriers—has to obtain information from energy companies with cogeneration generating units in its area to assess the production potential electricity in high-efficiency cogeneration. The issue of assessing the potential of energy-efficient heating or cooling systems and the obligation to perform these tasks are similar following local spatial development plans or the arrangements in the study of the conditions and directions of the spatial development of any commune [1].

Art. 19 of the Energy Law sets out the procedure for drawing up assumptions to the commune's supply plan, which must refer simultaneously to all three energy carriers

(electricity, gas and heat) and cover the area of the entire commune. The commune spatial planning documents bind the commune when drawing up the assumptions for the heat, electricity and gas fuel supply plan. Moreover, any commune must take into account the air protection program adopted under Art. 91 of the Act of 27 April 2001 Environmental Protection Law [43] aims to achieve the permissible and target levels of substances in the air. The draft assumptions prepared by local self-government authorities should specify: (1) assessment of the current state and expected changes in the demand for heat, electricity and gaseous fuels; (2) projects rationalizing the use of heat, electricity and gaseous fuels; (3) the possibility of using the existing surplus and local resources of fuels and energy, including electricity and heat generated in renewable energy source installations, electricity and utility heat produced in cogeneration, waste heat management from industrial installations; (4) the possibility of applying energy efficiency improvement measures within the meaning of Art. 6 sec. 2 of the Act of 20 May 2016 on energy efficiency [40]; and (5) the scope of cooperation with other communes in the field of energy safety.

Energy enterprises cooperate with the local government and submit information necessary to develop the draft assumptions for the heat, electricity and gas fuel local government's supply plan. The adopted assumptions are a document based on which a heat, electricity and gas fuel supply plan is prepared for the commune area, specifying the rights and obligations of entities participating in expanding the network, including network enterprises and people applying for joining. The draft plan mentioned above should include, among other things, proposals for the development and modernization of individual supply systems in heat, electricity and gaseous fuels, together with an economic rationale. The executive body of the commune prepares the plan and then passed it by the commune's council [1].

Some tasks in the field of supplying the local community with heat, electricity and gaseous fuels are essentially the domain of energy companies, which does not exclude the possibility of conducting business activities by the commune consisting, for example, in the transmission and distribution of heat, electricity and gas fuels in the form of a communal budgetary organization. At the same time, the commune may participate in a commercial law company through its capital share public. In the remaining scope, cooperation between the commune and energy companies is necessary, in particular in the context of processes infrastructure, rationalization of investment planning, organization of formal and legal conditions for the future expansion of the network and forecasts of customer demand for heat, electricity and gaseous fuels [1].

In order to implement the local government's supply plan, the municipality may conclude contracts with energy companies. According to Art. 7 sec. 5 of the Energy Law, an energy company, dealing with transmission or distribution of gaseous fuels or energy, is obliged to ensure the implementation and financing of the construction and expansion of the network, including to connect entities applying for connection, under the conditions specified in the regulations on the detailed conditions for the operation of the electricity, gas and heating systems, and on the detailed principles of shaping and calculating tariffs and settlements in trade and the assumptions or plans referred to in Art. 19 and 20 of the Energy Law. Above, the regulations provide for a 15-year planning period and an update every three years. In addition, energy companies involved in the transmission or distribution of gaseous fuels or energy following Art. 16 Energy Law acts are prepared for not less than three years, for the area of its operation, a development plan to meet the current and future demand for gaseous fuels or energy (except for the heat). The plans of energy companies should take into account: (1) local spatial development plan—in the case of plans prepared by the energy company occupying the distribution of gaseous fuels or energy; (2) establishing a national spatial development concept or establishing a voivodship's (Poland is divided into 16 regions named voivodships) spatial development plan, or in the absence of such a plan, the voivodship development strategy—in the case of plans prepared by an energy company transporting gaseous fuels or energy; (3) the State energy policy; (4) community-wide ten-year network development plan referred to

referred to in Art. 8 sec. 3 of the Regulation of the European Parliament and of the Council (EC) No. 714/2010 of 13 July 2009 on access conditions to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/200380 (Journal of UEL 211 of 14.08.2009, p. 15, and amended) or in Art. 8 sec. 3 of Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on the conditions of access to the gas transmission networks and repealing Regulation (EC) No 1775/200581 (Journal of UEL 211 of 14 August 2009, p. 36, and amended)—in the case of an energy company engaged in the transmission of fuels gas or electricity; and (5) the policy of infrastructure development and alternative fuels market in transport [1].

Conducting licensed economic activity on the fuel market and energy referred to in Art. 32 of the Energy Law Act may be run in the form of energy clusters. From the point of view of local government, it is a solution that transfers certain decisions to the community level local. The energy cluster is a civil law agreement that may include natural persons, legal persons, scientific units, research institutes or local government units concerning the generation and balancing of demand, distribution or trade-in energy from renewable energy sources or other sources or fuels within the grid distribution with a rated voltage of less than 110 kV, in the area activities of this cluster. This area may not exceed the boundaries listed by Act of 5 June 1998 on district self-government (Journal of Laws of 2020, item 920) [44] and the Act of 8 March 1990, on commune self-government. (Poland is divided into 16 regions, and those regions are divided into districts, which includes communes). Clusters through combining activities from several areas of the economy may ensure local energy self-sufficiency.

Running a business in electricity production requires a license to generate electricity from the Polish Energy Regulatory Office. An entrepreneur does not need a license if he wants to generate electricity: in sources with a total installed electricity capacity of no more than 50 MW—not included in the installation of a renewable energy source or to cogeneration units; agricultural biogas; exclusively from agricultural biogas in cogeneration; exclusively from bioliquids; a renewable energy source installation with a total installed electrical power greater than 50 kW and less than 500 kW, connected to the power grid with a rated voltage lower than 110 kV or with a combined heat output greater than 150 kW and not greater than 900 kW, in which the total installed electrical capacity is greater than 50 kW and less than 500 kW; a renewable energy source installation with a total installed electrical capacity of not more than 50 kW, connected to the power grid with a rated voltage of less than 110 kV or combined heat output of not more than 150 kW, with a total installed electrical capacity of not more than 50 kW.

An entrepreneur may obtain the license with a seat or place of residence in the territory of a European Union Member State, Switzerland, Turkey, or an EFTA Member State, or a party to the Agreement on the European Economic Area—i.e., Norway, Iceland and Liechtenstein. The entrepreneur must have financial resources that guarantee the proper performance of the business and can document the possibility of obtaining them. The entrepreneurs must prove that: they have the technical capacity to ensure the proper performance of the activity; employ people with appropriate professional qualifications in the field of network operation, devices and installations; obtained a decision on building conditions and land development; and they are not in arrears with the payment of taxes constituting the income of the state budget. The entrepreneur must obtain such a certificate before commencing economic activity in the field of electricity generation. The same requirements apply to entrepreneurs running a business in the field of electricity distribution. They also have to obtain a license from the Energetyka Regulatory Office. The distribution of electricity should be understood as the transport of this energy through distribution networks to deliver it to consumers.

3.3. Local Energy Safety: The Reality

It was found that 21 out of 22 analysed municipalities failed to comply with the obligation to adopt or update the assumptions for the heat, electricity and gas fuel supply

plan within the time required by law, i.e., until 12 March 2012. The delay in adopting the assumptions to the plan amounted to 2 up to 80 months, and five communes have not fulfilled this obligation at all. Moreover, the communes did not update the adopted assumptions within the time limit resulting from Art. 19 paragraph 2 of the Energy Law, i.e., at least every three years. Consequently, most of the analysed communes (12 out of 22, i.e., 54.5%) did not have the current assumptions for the Supply Plan [1].

In addition to delays in adopting the assumptions, the assumptions to the Supply Plan adopted by 15 out of 22 analysed municipalities contained disadvantages such as the incorrect forecast of electricity supply or failure to indicate strategic goals and directions for developing energy networks with the forecast changes in conditions. Moreover, it contains failure to specify the scale and material scope of possibilities to apply measures to rationalise heat usage, electricity and gaseous fuels, use the existing surplus and local resources of fuels and energy, and apply energy efficiency improvement measures. Some of the assumptions covered by the study were inconsistent with the directions of the commune's development defined in the adopted strategic documents. In 8 cases out of 22 analysed communes, the scope of tasks indicated in the assumptions was inconsistent with another strategic commune plan, which was inconsistent with the provisions of the law. Such a situation may constitute the basis for energy enterprises to refuse to connect to the grid by new customers applying for it or to fail to build and expand the grid to the desired extent. Thus, the interests of local communities are violated [1].

It was found that the Minister of Energy did not effectively monitor the municipalities' obligation to adopt the assumptions for the Supply Plan and update them on time. Information collected in this regard, obtained through regional local governments, had limited credibility. The knowledge of the marshals (heads of regional self-governments) was limited to which communes submitted the project for opinion in terms of coordination of cooperation with other communes and compliance with the state's energy policy. In sum, the public authority responsible for tasks in the area of energy safety did not know the extent to which municipalities had fulfilled the obligations of supplying electricity, heat and gaseous fuels. Twenty-two analysed communes (100%) did not check the development plans of energy companies at all. The lack of monitoring in the above scope did not allow for a reliable assessment of whether there were conditions for the fulfilment of the obligation of the local government to develop a heat, electricity and gas fuel supply plan following Art. 20 paragraph 1 of the Energy Law. Municipalities did not establish measures for the achievement of energy safety targets. The communes also did not develop the principles of energy safety monitoring and did not conduct such monitoring. Activities related to the development of the electricity, heating and gas networks, specified in the strategic documents of the audited municipalities, undertaken by both municipalities and energy companies, increased the accessibility of consumers to this infrastructure. However, the scale of the completed investment tasks, apart from power grids, was smaller than the inhabitants' needs and, than the assumed scope. Because of the passivity of municipal authorities, the development of energy networks took place only to the extent that took into account the economic interest of energy companies. However, the activities carried out by these companies did not increase the accessibility of individual energy networks to the desired degree. The length of exploited heat networks in the examined communes in 2015–2018 increased only by 0.2% and the used connections to buildings by 6.5%, in terms of access to the gas network, despite its intensive expansion (in 2015–2018, the length of the gas network increased by 18.8%, the number of connections by 32.9%, and the number of users by 24.7%) [1].

The activities undertaken by the examined communes in reducing the negative environmental impact of supplying electricity, heat and gaseous fuels were not entirely effective. The reason was the lack of funds and ineffective efforts to obtain them. Moreover, municipalities treated their low-emission economy programs only as a requirement necessary to obtain EU funds and not as a program necessary to achieve air quality improvement objectives. The communes did not diagnose the impact of the functioning energy systems

on the level of air pollution. Consequently, the mitigation measures were not based on a reliable basis. These activities were not monitored or evaluated in terms of the achieved effects. Municipal offices did not have full knowledge of implementing tasks set out in the adopted programs (environmental protection program, low-emission economy plan, and air protection program). Some tasks were carried out by entities independent of communes, for which the communes did not provide themselves with tools for controlling and monitoring the effects of the commissioned tasks, including environmental effects. The communes also failed to fulfil their obligations in the scope of reporting and evaluating the effects of the implemented actions resulting from the adopted programs. The above omissions hampered the effective management of the programs mentioned above, including reacting to deviations in implementation from the adopted schedules and taking corrective actions [1].

The Minister of Energy took steps to develop and implement a strategy for the development of energy clusters. For this purpose, he prepared a concept for implementing energy clusters and a project for the development of energy distributed in energy clusters. However, the system of collecting data on clusters applied in the Ministry of Energy, based on the total voluntary provision of information only by clusters that obtained the certificate of a pilot energy cluster did not provide complete and reliable knowledge necessary to assess the effectiveness of this tool. Meanwhile, the municipalities were involved in the activity of energy clusters to a limited extent. In none of the 22 analysed communes (100%), this activity contributed to the development of distributed energy, which serves to ensure energy safety [1].

The SAI audit report analysis shows a need for improving legal mechanisms for the State to enforce the implementation of the obligation under Art. 19 of the Energy Law to strengthen energy safety. There is a need to carry out an inventory of local energy resources and energy infrastructure and systematically assess options to meet local energy needs. Accurate determination of needs is the basis for rational planning of activities increasing local energy safety. Certainly, guidelines should be developed for municipalities in terms of good practices in preparing and implementing assumptions for the energy safety plan. SAI's recommendations followed this direction [1].

Sadik-Zada et al. [45] explored the crossnational impact of privatisation in the network industries on the access to network services in 20 Latin American countries. To control the relevance of the subsidiarity (social commons) argument, they assessed the interaction between commodification and the role of the subnational governments in the power sector. One may generalise their findings in the following way: privatisation has a statistically significant positive effect on electricity access; in the absence of federalism, privatisation in the electricity sector has a more significant impact on electrification than in the federalist government system; federalism positively impacts electricity access if electricity is generated and supplied mainly by state-owned enterprises; and there is a relationship between subsidiarity and electrification: a higher degree of subsidiarity harms electrification. It could be a result of the increasing transaction costs and rent-seeking behaviour in the decentralised settings.

In the case of Poland, which is not federalised country, the size of municipal units does not affect the degree of subsidiarity, and municipalities have to follow regulations set by the Polish Parliament. The electricity market is price regulated. Both private and public producers can compete for clients. The Financial Ombudsman institution protects consumers' rights in financial transactions, and the Office of Competition and Consumer Protection protects consumers against improper practices by electricity producers and suppliers. The Supreme Audit Office, which is the public auditor, is also on guard. Moreover, Poland is linked with the legal system of the European Union, and any practices restricting economic freedom or consumers' rights cannot take place when they are inconsistent with European Union law.

4. Conclusions

The findings show that in the period covered by the SAI audit, the activity of public administration did not ensure an adequate level of local energy safety, particularly in terms of covering the recipients' demand for heat and gaseous fuels and in terms of environmental protection. It is also disturbing that the State institutions responsible for the energy safety did not have complete and reliable information on the degree of fulfilment of energy supply obligations electricity, heat and gaseous fuels by communes, and there were no intervention tools in a situation where the needs of consumers in this area were not properly realised. Such a situation not only reduced energy safety but also was contrary to good governance.

The municipalities did not develop or developed with a significant delay the assumptions to the obligatory Supply Plan, and the assumptions adopted were flawed. Meanwhile, it is a crucial plan from the prism of energy security. In practice, communes did not shape a coherent local energy policy. They created a growing risk that the goals set out in the implemented energy programs would not be fully achieved. The reason for the failure to complete some of the tasks was the lack of external financing. However, communes were passive in seeking financing from different sources. The municipalities did not prioritise creating low-emission energy systems and thus not effectively reduce the level of the so-called low emissions. Meanwhile, the scale of air pollution caused by smoke from home furnaces places Poland as the leader of poisoned air in the European Union [46].

Communes undertook activities in cluster initiatives. However, the involvement of municipalities in energy clusters has not brought the expected results so far. None of the 22 analysed communes contributed to the development of distributed energy and increased local energy safety. As a result, the current energy supply system, which is the responsibility of municipalities, works ineffectively. Admittedly, it ensures at a basic level the possibility for consumers to use electricity and heat. However, it does not create conditions for implementing low-emission energy systems that would meet recipients' needs while using modern technologies and adequate protection of the environment. One may argue again that the local government missed good governance.

This study can form a source for an inquiry process in any country, thus contributing to a better contextual diagnosis of the stage where the States build their energy safety. The research contributes to the development of the theory of local energy safety. The current state of knowledge in this area is still limited.

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