

ENERGY MONITORING AND CONTROL IN EU MEMBER STATES: LEGISLATIVE TRENDS AND INSTITUTIONAL FRAMEWORK

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Annotation. *In most EU member states, there are numerous legislative initiatives and reforms in the energy sector, which are significantly interconnected and complementary, an appropriate institutional basis has also been created, that is, bodies and organizations that ensure the implementation of energy policy, among which energy monitoring, energy control (supervision), implementation of the rules and principles of the functioning of competitive energy markets are distinguished. The aim of the work is to reveal the essence, legislative framework and institutional mechanisms of energy monitoring and control in the EU member states in order to take into account the relevant experience on the way to improve the mentioned instruments in Ukraine. The methodological basis of the research is a set of approaches, methods, principles of knowledge of concepts, ideas, hypotheses, students, laws, the use of which allows to obtain true knowledge about energy policy, energy monitoring and control. Their multifaceted study presupposes the application of the following basic principles of research: complexity, systematicity, historicism, objectivity, argumentation, determinism, etc. To achieve the goal, the use of dialectical, comparative-legal, historical, hermeneutic, synergistic, formal-logical, formal-legal, semantic and semiotic, model, prognostic and other methods became expedient.*

Results. *Unlike most EU member states, in Ukraine, numerous bodies implement state energy supervision, monitoring and control. According to the legislation of the EU member states, the concept of “energy supervision” is practically not used, except in Finland and partly in the Czech Republic. National regulators of energy markets are characterized mainly by energy monitoring, control, and management. They are established in special laws, including the French Energy Code, the Finnish Energy Agency Act, which refer to relevant EU directives and regulations. The peculiarity of Germany is the regulation of energy markets and energy supervision by various institutions, which to some extent is not consistent with EU energy legislation.*

Conclusions. *The general purpose of the functions of energy supervision is to ensure the functioning of energy equipment and energy markets for the implementation of the national energy policy in accordance with EU strategic acts, the observance of consumer rights regarding the choice of a profitable supplier, which will guarantee uninterrupted energy supply and competition in the energy sector. This leads to the continuation of reforms in the energy sector, improvement of national legislation, including issues of energy monitoring and control, energy efficiency, guarantees of energy security, sustainable energy development etc.*

Key words: *energy policy, monitoring, control, supervision, legislative regulation, institutional basis, energy security, guarantees.*

1. Introduction.

In Ukrainian and foreign studies, attention is often drawn to the problems of energy development, energy security of renewable energy sources, national and supranational energy markets, including the European Union, energy efficiency, energy policy. In most EU member states, there are numerous legislative initiatives and reforms in the energy and environmental sectors, which are significantly interconnected and complementary. An appropriate institutional basis has also been created, that is, bodies and

organizations that ensure the implementation of energy policy, among which energy monitoring, energy control (supervision), implementation of the rules and principles of the functioning of competitive energy markets are distinguished.

2. Analysis of scientific publications.

General issues of energy development, energy policy, energy efficiency, international cooperation in the energy sphere, its legal basis and institutional mechanisms are investigated, in particular, by A. Bradbrook, S. Bilotskyi, P. Bortsevich, L. Kobyljanska, T. Walde, T. Van de Graaf, S. Zavorodnia, R. Yedelev, A. Korynevich, A. Lelechenko, V. Lear, M. Medvedeva, O. Muza, R. Tormosov, M. Chipko, O. Sukhodolya, Y. Kharazishvili, A. Steiner. However, works devoted to issues of energy monitoring and control, comparative and legal aspects of their implementation were practically absent in Ukrainian science.

3. The aim of the work is to reveal the essence, legislative framework and institutional mechanisms of energy monitoring and control in the EU member states in order to take into account the relevant experience on the way to improve the mentioned instruments in Ukraine.

4. The methodological basis of the research is a set of approaches, methods, principles of knowledge of concepts, ideas, hypotheses, students, laws, the use of which allows to obtain true knowledge about energy policy, energy monitoring and control. Their multifaceted study presupposes the application of the following basic principles of research: complexity, systematicity, historicism, objectivity, argumentation, determinism, etc. To achieve the goal, the use of dialectical, comparative-legal, historical, hermeneutic, synergistic, formal-logical, formal-legal, semantic and semiotic, model, prognostic and other methods became expedient.

5. Review and discussion.

The energy, various energy sources, ecologically oriented energy, EU energy policy and energy security of people, states and communities, ensuring energy sustainability are not only among the most important issues of economic policy of this supranational organization, but also a significant challenge for all its member countries [1]. The EU energy policy is built in a complex economic environment, the main characteristics of which are rising prices and competition for energy resources, accelerated depletion of energy reserves, non-transparency and non-competitiveness of energy markets, underinvestment in energy industries of exporting countries [2]. That the EU is facing such challenges as increased demand for energy and the need to reduce the negative impact of the energy sector on the environment.

As noted by S. Bilotskyi, R. Yedelev and other scientists, the categories of "energy security", "security", "energy development" do not have a specific "industry" affiliation. They have a universal, regional and national level, and specifications within the framework of "economic", "energy", "ecological", "food", "nuclear" safety serve not only the norms of a certain industry, but also other related industries. They are not related to a certain branch of law, they are part of a holistic dimension of security at a certain level. For example, international energy security is not only energy security, but a part of holistic security implemented within the framework of the energy industry. The adjective "energy" in this case does not characterize a specific field of interaction between states, where security should operate, but security as such, in the new "energy" decoration, which also functions in other areas of international relations. The embodiment of this phenomenon is the principles of energy security, sustainable energy development, etc [3-4]. Corresponding conclusions also apply to the supranational dimension of energy development in the European Union, energy law and EU legislation, largely similar fields in national legal systems.

Currently, the European energy legislation provides for a certain harmonization of changes in legislation in all energy sectors, such as electricity, coal, oil and gas, nuclear energy and the use of alternative

energy sources, etc. Thus, EU member states, along with others, implement existing international legal and supranational acts at the national level, namely: the European Energy Charter of 1991, "Energy 2020. Strategy for competitive, sustainable and secure energy" (2010), "Energy Union Strategy to 2030", "Clean Energy for All Europeans" (2016), "Strategy Framework for a Sustainable Energy Union with a Long-Term Climate Change Policy", "Roadmap for an Energy Union to 2050". etc. These are mainly acts of a fundamental and strategic nature, which include key directions, principles of the common energy policy of the EU, and determine the priorities of further sustainable energy development. For example, the "Energy 2020" Strategy became the basis for the implementation of the adopted new "European Energy Security Strategy" [5-6].

The main components of EU energy policy are: 1) security, 2) supply, 3) competitiveness, 4) sustainable energy – recognized standards and strategic vectors of energy policy development, which are implemented both at the supranational level and at the level of EU member states. In turn, the aforementioned Framework Strategy provides for providing consumers (both domestic and business) with energy in a safe, secure, stable, competitive and affordable way, as well as close cooperation. The European Commission focuses on promoting the achievement of the main strategic goal of the EU - the transfer of Europe to the foundations of a highly efficient energy community and a low-carbon economy, which can become a catalyst for the implementation of the "new industrial revolution" [5-6].

The key principles of a competitive internal EU energy market are strict compliance with EU directives and regulations in the energy sector, which provides for the existence of independent state regulators that ensure the implementation and enforcement of mandatory rules for the functioning of energy markets.

The fourth EU energy package "Clean energy for all Europeans package" ("Clean energy for all Europeans package", 2019) approved the requirements for the organization of internal and common European energy markets [7]. Thus, the European Commission intends to establish regular monitoring of fossil fuel subsidies in the EU and expects member states to implement their energy and climate plans to phase out fossil fuel subsidies. This will support the development, implementation, monitoring and evaluation of policies and relevant financial instruments [5; 8-9].

According to the Third EU Energy Package, the regulator should be independent from the government, and the regulators of the member states should cooperate with each other for the development of competition, the opening of additional energy markets, and the efficient and safe functioning of the infrastructure [10]. According to Directive (EU) 2019/944 of the European Parliament and the Council on common rules of the internal electricity market and amending Directive 2012/27/EU (Directive 2019/944), the regulator is encouraged to implement technical measures to ensure the security of energy systems and energy infrastructure (in the legislation of Ukraine it is "energy supervision") [11].

So, in fact, the regulator should be a responsible institution at the national level for the implementation of EU rules in the energy sector. The competence of the EU member state includes the definition of the political framework in which the regulatory authorities should act, for example, regarding the security of energy supply. However, the general guiding principles of energy policy determined by the state should not violate the independence of regulatory bodies, EU legislation in the energy sector. Regulators are entrusted with the following powers:

- ensure that transmission system operators and distribution system operators take appropriate measures to ensure network stability and flexibility;
- control the efficiency of these operators based on the specified indicators (development of remote monitoring, management of power substations in real time; reduction of losses in the power grid; frequency and duration of interruptions in power supply);
- make binding decisions regarding electric power companies, conduct investigations, settle disputes, impose sanctions for breach of obligations, or by applying to court;
- to make decisions, regardless of the application of competition rules, on appropriate measures that would provide benefits for consumers by promoting effective competition, which is necessary for the proper functioning of the internal electricity market.

Each Member State appoints a single regulator at national level, which does not prevent the appointment of other regulatory authorities at regional level, provided that one of them is the main representative for contact purposes at EU level in the Board of Regulators of ACER – the EU Agency for the Cooperation of Energy Regulators - in accordance with Regulation 2019/942 (Article 21(1)) Directive 2019/944 (Article 58). ACER was created to develop cooperation and ensure the smooth functioning of the internal EU energy market [12].

National energy regulatory bodies (regulators) through the introduction of network tariffs and norms in accordance with Directive 2009/72/EU provide incentives for network operators to provide network users with system services. This makes it possible to implement measures to improve energy efficiency in the context of the continued deployment of smart energy systems, with the performance of appropriate supervisory (control) functions.

The French Energy Code (Code de l'énergie) defines the tasks and priorities of the national energy policy, including the implementation of energy supervision. The state regulator here is the Energy Regulatory Commission⁸, which promotes the proper functioning of the electricity and natural gas markets for the benefit of end users in accordance with the goals of France's energy policy. It has broad powers: control of operations between suppliers, traders, producers of electricity and natural gas; monitoring of their operations regarding quotas for greenhouse gas emissions; has the right of access to bank accounts of energy companies operating in the electricity and natural gas sector, as well as to economic, financial and other information; receive reporting documents and invoices, other documents; conduct investigations, etc [13]. At the same time, in France, the practice of monitoring the implementation of the energy policy has been introduced, so a natural or legal entity that produces, transports, distributes, imports, stores, exports or supplies energy, sends data on its activities to the responsible administrative body. Functions related to the collection, processing and distribution of this information may be delegated to government agencies, managers of transmission and distribution networks or third parties. This also applies to the collection, processing and distribution of information necessary for state energy consumption statistics. The inspection body of energy control (supervision) can be an organization accredited by the French Accreditation Committee (COFRAC) or another state authority for accreditation, and approved by order of the Minister of Energy [14].

In the Czech Republic, the national energy market regulator is the Energy Regulatory Office – acts according to the Law "On the conditions of conducting business and implementation of state management in the energy sector and on amendments to some laws". Its competence includes: issuing licenses in the energy sector; protection of legitimate interests of clients and consumers in the energy sector; support of competition; supervision of energy markets; support for the use of renewable and secondary energy sources, combined production of electricity and heat, decentralized production of electricity; monitoring the amount of biomethane emissions, etc. The Office supervises compliance with the provisions of the Law "On the Protection of Consumer Rights in Business in the Energy Sector"; monitors and checks conditions of access to gas tanks and related services; publishes an annual report on the results of monitoring activities in the energy sector, as well as annual and quarterly reports on the operation of systems in the energy sector; cooperates with regulatory bodies of other EU member states and ASER; controls the contractual relations between the transmission system operator and other persons who are part of the same concern, including the course of their implementation [15].

In Germany, the Federal Network Agency (Bundesnetzagentur) was established to ensure compliance with the Energy Act (EnWG) and regulations in this area, guarantee the liberalization and deregulation of energy markets, determine the system fee for such access, and perform monitoring [16-17]. As in other states, the Agency has broad mandates, with regional offices to liaise with consumers and industry in the state. At the same time, the implementation of the federal energy policy is entrusted to the ministries of the federal states for the environment, economy, transport, construction, and urban development. The German Energy Agency (Deutsche Energie Agentur, DENA) [18] operates here, which implements energy-saving projects and programs, including the safety of the energy infrastructure, its assessment, and control over the operation of operating power plants. It is a limited liability company and at the same time a federal institution, founded by the state in the person of the Federal Ministry of Economics and Climate Change of Germany, other federal authorities, the German credit institution for reconstruction.

Among the tasks of DENA according to its Charter are energy consumption monitoring; analysis of the fuel and energy balance of the state and the dynamics of energy prices; promoting the cooperation of energy workers and climate protection agencies; monitoring of its activities, which provides constant verification of the effect of network initiatives in the energy sector, etc. That is, in Germany, the state regulator simultaneously exercises control over energy markets and functions of supervision over energy facilities.

The national regulator of Finland – the Energy Agency – is an independent body that provides oversight of the wholesale electricity market, the development of security of supply of electricity and natural gas. Acts under the Law “On the Energy Agency”, implementing the goals of the national energy policy, carries out energy supervision, monitoring of national and international development of the energy industry, takes initiatives to develop energy legislation, assists the Ministry of Labor and Economy of Finland in implementing energy efficiency, etc [19].

In turn, in Ukraine, energy supervision is carried out by the State Inspection of Energy Supervision of Ukraine, providing control over the technical condition and operation of power stations, thermal, heat-using installations and networks, as well as energy equipment. Supervision of testing and repair of thermal, heat-using electrical installations and networks and performance of their design work is also provided. The regulator of the markets of electricity, gas, heat energy, housing and communal services is the National Commission for State Regulation in the Energy and Utilities Sector – the central body of the executive power that carries out state regulation, monitoring and control over the activities of business entities in the energy sector and communal services. It should also be mentioned about the State Agency for Energy Efficiency and Energy Saving of Ukraine (State Energy Efficiency Agency), which is entrusted with state supervision in the field of the use of cogeneration plants. And the Ministry of Energy of Ukraine is responsible for monitoring the safety of natural gas supply, etc.

At the same time, the Association Agreement between Ukraine and the EU provided for the continuation of cooperation in the field of energy and energy efficiency [20], as well as a number of memoranda in the field of energy, including a mutual understanding on the Strategic Energy Partnership between Ukraine and the EU together with the European Community with of atomic energy in 2016, other agreements and programs. Therefore, we agree that this is the basis of a large-scale approximation of Ukrainian legislation to EU law, as well as reforms in the energy sector [4; 21], which requires the improvement of national legislation related to energy monitoring and control.

6. Conclusions.

Therefore, unlike most EU member states, in Ukraine, numerous bodies implement state energy supervision, monitoring and control. According to the legislation of the EU member states, the concept of “energy supervision” is practically not used, except in Finland and partly in the Czech Republic. National regulators of energy markets are characterized mainly by energy monitoring, control, and management. They are established in special laws, including the French Energy Code, the Finnish Energy Agency Act, which refer to relevant EU directives and regulations. The peculiarity of Germany is the regulation of energy markets and energy supervision by various institutions, which to some extent is not consistent with EU energy legislation.

The general purpose of the functions of energy supervision is to ensure the functioning of energy equipment and energy markets for the implementation of the national energy policy in accordance with EU strategic acts, the observance of consumer rights regarding the choice of a profitable supplier, which will guarantee uninterrupted energy supply and competition in the energy sector. Energy supervision usually means monitoring compliance by energy market participants (with the exception of consumers) of the requirements of regulatory acts on the technical operation of energy (electric and gas) stations and networks, the technical condition of energy installations and networks.

This leads to the continuation of reforms in the energy sector, improvement of national legislation, including issues of energy monitoring and control, energy efficiency, guarantees of energy security, sustainable energy development etc.



Ukraine's acquisition of the status of a candidate for EU membership presupposes a thorough study of international and European legal standards, mechanisms for the implementation of energy policy at the national and supranational levels, including energy control and monitoring, ensuring EU energy security, the procedure for the activities of supranational governing bodies, specialized agencies in this field, priority and prospective obligations for Ukraine. Moreover, such a vulnerable sphere as energy requires, in the conditions of restoration of damaged energy infrastructure objects as a result of a full-scale invasion of the territory of the Ukrainian state, not only transparent monitoring and control tools, including state and public types, but also additional guarantees of international security, strengthening of responsibility for their violation.

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