Legal Issues of Using Alternative Sources in Energy Sector: Implementation Methods and Challenges

Liubov V. Zharova, Natalia V. Eremeeva, Aleksander Sapiński and Sabina Sanetra-Półgrabi

[1]*Prof. Wyższa Szkoła Ekonomiczno – Humanistyczna (Poland), Doctor of Science in Economics, Head of department of Ukrainian American Concordia University, Kyiv, Ukraine*
[2]*Institute of Economic and Legal Research of NAS of Ukraine, PhD in Law, Head of Department of Economic and Legal Studies of Economic Security and Safety Issues, Kyiv, Ukraine*
[3]*Faculty of Finance and Information Technology, Bielsko-Biała School of Finance and Law (Poland), Poland*
[4]*Adjunct at Pedagogical University of Carcov, Poland*
E-mail: zharova.l@gmail.com; Eremeevanata01@gmail.com; olek.sapinski@interia.pl; sab_san@poczta.onet.pl
[*]*Corresponding Author*

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Abstract

The paper focused on legal issues of using secondary sources in energy sector and implementation methods and challenges. The main idea of the proposed research is to substantiate the proposals and recommendations aimed at solving scientific and methodological problems of forming an effective economic and legal mechanism of secondary resource use based on a comprehensive approach to legal support for it. The paper underlined that secondary sources as an economic phenomenon occurs in conditions of

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growing demand for limited natural resources, including energy, increasing consumption, increasing the burden on the environment due to the accumulation of waste that cannot be recycled in natural conditions. The research stated that use of secondary resources is the basis of a circular economy, a new model of management based on the idea of green growth. Formulated prerequisites for involvement in economic circulation are the technological feasibility and economic feasibility of energy generation, which determined by the profitability of each type of production using secondary sources. The authors stressed that there is the urgent need to outline appropriate tools for legal regulation of outsourcing relations at the microeconomic level, the definition and essential characteristics of the most appropriate legal means in the mechanism of economic and legal regulation of outsourcing relations in the energy sector; economic and legal means that provide the optimization effect of outsourcing. Summarizing the research, the five steps methodology for assessing the implementation methods and challenges are formulated.

Keywords: Sustainable development, sources of energy, circular economy, energy law.

Study Rationale

The balance between economic developing based on usage of natural resources and preserving the environment is a global challenge. An important aspect of resource-saving activities is the involvement of secondary resources in the economic sphere in the field of energy, which will increase economic, energy and environmental security. The positive economic effect of the use of secondary resources in the energy sector is to achieve the goals of economic security – reducing the share of fossil fuels in the energy balance of the country, diversification of energy sources; activation of energy saving reserves, stimulation of innovation and investment processes. In the context of environmental safety, secondary resource use can reduce the environmental burden on the environment, in particular carbon emissions; contributes to solving the problem of waste disposal. Achieving a socially positive effect of secondary resource use in this area is to help meet the needs of the population in a reliable supply of affordable clean energy.

The idea of involving secondary resources into economic circulation is based on the concept of a waste-free economy (“circular economy”, “closed cycle economy”), the main principles of which are reflected in the first EU

Action Plan on the circular economy (eur-lex.europa.eu). The role of the concept of "waste energy" in the circular economy (ec.europa.eu). Joining the European concept of a waste-free economy with a high level of resource efficiency is becoming one of the strategic directions of the country's economic development. Attracting secondary resources into economic circulation is carried out by technical, economic and legal means.

In the EU countries, the formation of the legal framework of the "circular" economy was marked by the transition from a "clean" environmental to a cross-sectoral model of waste management and secondary resource use, focused on integrated sustainable development goals.

The main idea of the proposed research is to substantiate the proposals and recommendations aimed at solving scientific and methodological problems of forming an effective economic and legal mechanism of secondary resource use based on a comprehensive approach to legal support for the use of secondary resources in energy. Our research focused on Ukraine experience, because it is possibility to estimate the legislation effectiveness on the example on adopting to it and implementation.

Ukrainian legislation in this area should be brought into line with the EU Directives, such as: (a) Directives № 2008/98/EU, № 2010/75/EU (b) Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions, integrated pollution prevention and control. (OJ L 328, .2018: 82–209) (c) № 2006 /21/EU and № 2018/2001/EU (Directive 2008/98/EC 2008:3). The framework for harmonization of the internal legislation of Ukraine with the requirements of the EU are defined in documents of strategic character including Energy strategy of Ukraine for the period until 2035 (Розпорядження Кабінету Міністрів України, 2017 № 605-р., №176); Waste management strategy (Розпорядження Кабінету Міністрів України, 2017: №820, №94:2859.); Basic principles (strategies) of the state ecological policy of Ukraine for the period up to 2030 (Закон України 2019, №16:70). However, an effective economic and legal mechanism for secondary resource use in the energy sector has not been formed.

In Ukrainian practice, the relations of secondary resource use in energy, which arise at the intersection of the subjects of legal regulation of environmental legislation, including waste management legislation, and energy legislation, trapped into the so-called "shadow zone". The uncertainty of priority goals, principles of legal regulation, characteristics of secondary resources as objects of law still complicate the establishment of an effective legal regime for them. The development and implementation of economic

instruments to stimulate the use of secondary resources for the production of electricity and heat are blocked by numerous conflicts of environmental, energy, and tax laws. Currently, there is no legal mechanism for taking into account the price of reusable natural resources and processing and disposal of waste in the price of goods and products. Existing environmental and legal constructions do not take into account the potential possibility of the owner of waste to make a profit from their sale as energy raw materials. Since such a transformation of the legal regime takes place outside the economic and legal stage of the life cycle of waste, it is not taken into account by the rules of economic and legal institutions – pricing, competition law, taxation, and others. The inconsistency of environmental and economic approaches complicates the use of the potential of economic remedies, which in foreign practice demonstrate success in achieving sustainable development goals in this area, in particular, such contractual structures as concessions, contracts, etc.

The current state of legal support of secondary resource use in energy is characterized by a non-systemic and segmented approach to the regulation. The legislation of Ukraine in this area is an array of rules, scattered by regulations of different sectoral affiliation and legal force, which due to the uncertainty of the priority objectives of regulation, and are largely inconsistent. Legal uncertainty leads to the loss of significant resource potential and the deterioration of the environmental situation in the energy sector.

Resolving the issues regarding determining adequate economic and legal remedies of secondary resource use in energy, providing a comprehensive approach to the legal regulation of these relations, will help create a basis for the effective involvement of secondary resources in economic circulation.

The above allows us to conclude that the work on the formation of scientific and methodological approaches and practical recommendations aimed at creating an effective economic and legal mechanism of secondary resource use in energy is an important scientific problem to be addressed.

The main idea of the proposed research is to substantiate the proposals and recommendations aimed at solving scientific and methodological problems of forming an effective economic and legal mechanism of secondary resource use based on a comprehensive approach to legal support for the use of secondary resources in energy.

The work aims to develop scientific and methodological approaches to the formation of an effective economic and legal mechanism of secondary resource use in energy.

Theoretical Background

Preliminary analysis showed that the problems of using secondary resources in energy are revealed in the scientific works of foreign scientists – representatives of economics and law, mainly in the context of creating a market for secondary resources, waste in industrial production, and alternative energy development. In particular, the scientific developments of J. Adrian, N. Banks, A. Dorsman, and others (Adrian et al., 2003: 252), indicate a gradual change in the unipolar environmental and legal paradigm of regulation of relations in the use of secondary resources. That began with the establishment in EU policy and law of the ideology of sustainable development, including the concept of circular economy as a balanced model of management. The tendency to increase the energy conditionality of the provisions of the EU framework legislation on waste and further harmonization of its energy and environmental goals is emphasized (Morata et al., 2012:519).

In Ukrainian scientific society, the category of "secondary resources" is reflected predominantly in the works of economic direction. Therefore the attention mainly focus on the minimization of waste generation, the use of waste in industrial production and by increasing the raw material potential of the state, reducing the negative impact on the components of the environment (Міщенко, et al., 2012:120). In law scientific research, some aspects of this problem are studied through the prism of energy security and prevention of the negative impact of economic activity of energy market participants in the environment (Ашуркова 2015, 2012), the issues of waste management (Зуєв 2014:156). The scientific publications mostly concentrated on issues of improving the legal approaches to administrative law and environmental law science. At the same time, researchers emphasize on the conceptual "suitability" of these relations to the complex sectorial influence, the dualistic (ecological and economic) nature of these legal relations (Малишева, 2011:114-123). The modern research in economic and legal spheres concerning secondary resource use is considered it primarily in the context of legal support for energy conservation and development of alternative energy (Джумагельдиева, 2011, 2012, 2014). Nevertheless, the scientific research was carried out based on narrow sectoral concepts or focused only on certain aspects of legal regulation of the use of energy potential of secondary resources, because of which a holistic view of economic and legal means of secondary resource use in energy is not formed.

Economic and Legal Essence of Secondary Resource Use

Secondary resource use as an economic phenomenon occurs in conditions of growing demand for limited natural resources, including energy, increasing consumption, increasing the burden on the environment due to the accumulation of waste that cannot be recycled in natural conditions. The use of secondary resources is the basis of a circular economy, a new model of management based on the idea of green growth. It based on the achievement of a closed production cycle in order to reduce the pressure on the environment, which means for businesses to go beyond the usual model of rational resource use, increase the duration and potential reusability of materials, products and assets (Дейнеко & Ципліцька, 2018). By economic nature, secondary resource use in energy is aimed at the production and sale of energy from certain types of renewable energy sources; secondary energy resources; based on the use of energy potential of waste. Economic activity for the production and sale of energy that aimed to achieve the individual interests of the parties, in particular, to make a profit. Simultaneously, the use of specific energy sources distinguishes economic entities operating on the basis of secondary resource use into a certain group as agents of common (collective) interest, which distinguishes them from other participants in energy markets. Additionally, the sphere of secondary resource use is an infrastructure link and part of the resource base of the respective territories (Маковецька, 2011:172–180). At the regional and local levels, in the process of ensuring energy supply to consumers in the industrial and social spheres, the functioning of energy facilities and infrastructure, there is a coordination of corporate and regional interests, community interests, and collective in nature. As an activity of economic entities in the field of social production, secondary resource use contributes to the preservation of non-renewable energy resources – the total wealth of the people of Ukraine, reduces the share of fossil fuels in the energy balance of the country, diversify energy supplies. Regulation and standardization of this activity become a factor of energy security and the direction of the energy policy of the state. It is also necessary to take into account the European experience of implementing the principles of the circular economy. That led to new complex forms of interaction between the parties: the formation of integrated cycles in the economy in the form of communicative (circular) networks where different actors can coordinate their actions, at the scale of an individual community and at the national level (Зварич & Зварич, 2019). Thus, the national industrial symbiosis program in the UK that presented as a network of more than 15,000 industrial

companies based on mutually beneficial operations for optimization usage of surplus resources or underestimated resources (especially energy, water, waste) and the provision of logistics services. The Danish practice characterized as successful symbiotic relations between public authorities and private companies for the purchase and sale of waste, the purpose of which is to provide energy to household consumers, is well established (Report., 2016: 2.). For Ukraine, the public need for the balanced development of these relations objectively determines the need to streamline the actions of participants, differences in legal status, and subjective characteristics, the coordination of different levels of interest. At the center of this system of relations – the implementation of economic activity in the sense of Article 3 of the Economic Code of Ukraine for the production and sale of energy. Given the social significance of such activities, the satisfaction of the public interest in increasing the production and consumption of energy from secondary resources, involves a combination of efforts of private and public interests at the macro- and microeconomic levels. Thus, in the legal aspect, secondary resource use in energy is the activity of energy consumers, public authorities, local governments, aimed to the energy potential of secondary resources usage in economic circulation, and covers the implementation of economic, technical, organizational, legal measures. Public relations that arise during this activities demonstrate substantive diversity (signs of belonging to the subject of regulation of various branches of law – economic, environmental, administrative, financial, civil, land and other branches of law) while being the sole economic essence. This nature of the interaction of groups of social relations necessitates the emergence of functional links between the rules governing them, as compliance with strict sectoral segmentation in legal regulation contradicts their economic content. The solution to this problem is a comprehensive approach to the legal regulation of such relations based on the method of legal and economic order (optimal combination of market self-regulation of economic relations of economic entities and state regulation of macroeconomic processes – Article 5 of the Economic Code of Ukraine (Знаменский, 2012: 488). Within this approach, the *public interest* is provided by economic and legal means of macroeconomic influence. *National interests* – by forming forecasts and programs of economic and social development of Ukraine; regulatory and legal definition of the conditions for the relevant activities (standardization, permitting procedures and licensing, taxation, environmental regulations). *Collective interests* – through the specification of national goals in the programs of socio-economic development for the respective administrative-territorial units; balancing the scope of

economic competence of regional authorities, local governments with their tasks to ensure sustainable development of the respective territories. The coordination of the interests of economic entities operating based on secondary resource use and other participants in the energy markets is carried out by detailing competition legislation, tariffs, the introduction of a flexible system of economic incentives. Regulation of the spectrum of contractual relations within the Economic Code should ensure the realization of individual interests of business entities at the microeconomic level. A systematic approach to the legal regulation of secondary resource use in energy can be provided by integrating the goal of sustainable development into the legal order in the field of management as a basis for harmonizing sectoral mechanisms of legal regulation based on a system of legal principles and a common goal.

Peculiarities of the Legal Regime of Secondary Sources in the Energy Sector

Scope: Ukraine

Defining clear legal rules for attracting resources into economic circulation is a prerequisite for the sustainable development of relevant economic relations. The most suitable construction for the systemic characteristics of these rules is the concept of legal regime, which reflects the peculiarities of the legal nature of the object and methods of legal regulation of relations concerning its economic use (Качур, 2014: 54–63). The content of this regime for the particular object is determined by its material properties, which largely determine the range of legal means of involvement in economic turnover. The general legal framework of regulation the relations of secondary resource use in energy is forming by laws of Ukraine "On Energy Conservation" (Закон України, 1994: 74/94-ВР), "On Alternative Energy Sources" (Закон України, 2003: 555-IV) and "On Alternative Fuels" (Закон України, 2000:1391-XIV). The Law "On Waste" (Закон України, 1998: 187/98-ВР) provides the possibility of using waste under certain conditions as secondary resource or energy resources. However, the current legislation does not form a unified approach to defining the concept and characteristics of secondary energy resources. Thus, the Law of Ukraine "On Energy Conservation" describes this concept in general as the energy potential of products, waste, by-products and intermediate products. The Law "On Alternative Energy Sources" refers to such sources of secondary energy resources, but the term itself used in a narrow sense and applies only to blast furnace and coal

oven gases, methane gas, degassing of coal deposits, conversion of waste energy potential of technological processes. However, forestry and agricultural waste, fisheries and related industries, a component of industrial or domestic waste that is biodegradable, referred to as a type of biomass that is one of the renewable energy sources (RES). According to the Law of Ukraine "On Alternative Fuels", wastes, namely slags and wastes of industry, agriculture, utilities and other enterprises, are considered as a source or raw material for the extraction or production of alternative fuels. At the same time, industrial waste as a source of alternative gas fuel includes gas and ventilation emissions, the legal regime of which is determined by the Law of Ukraine "On Atmospheric Air Protection" and not by the Law of Ukraine "On Waste". Despite the above, the specifics of waste as an energy source not sufficiently reflected in the energy legislation (Трегуб, 2017: 81–88). Based on the general definition given in the Law "On Energy Conservation" (Article 1) the category "secondary energy resources" (SER) covers the following elements: waste (within the meaning of the Law of Ukraine "On Waste"); energy potential of products, by-products, and intermediate products, which is formed in technological units (installations, processes) and is not used in the unit itself but can be partially or completely used for energy supply of other units (processes).

The key features of SER are their secondary nature (optional use for the main technological process; complete or partial loss of consumer properties) and resource value (availability of energy potential). However, the scale and level of use of SER are characterized by significant unevenness and do not depend solely on energy properties. Prerequisites for involvement in economic circulation are the technological feasibility and economic feasibility of energy generation, which is determined by the profitability of each type of production using SER. Simultaneously, the need for sustainable development of the energy sector necessitates the consideration of additional factors influencing the formation of the content of the legal regime of SER: environmental protection and environmental safety, rational consumption of resources and energy efficiency; the need and ability to meet regional or local energy needs. At the present stage, numerous indicators such as the level of environmental impact, rational use of resources, and others measure the efficiency of the energy sector. Largely, this trend is reflected in the European waste hierarchy, which is enshrined in Directive 2008/98/EU and which is the responsibility of Ukraine under the Association Agreement with the EU. In the long run, such a hierarchy should become a key means of legal support for sustainable resource use in energy based on waste. The introduction of a similar system

of indicators for other types of SER, application in law-making activities, in planning and programming, in particular in the energy sector, the provision of state support, etc. will determine the desired vectors for the development of legal relations.

Transformation of legal regulation in the direction of strengthening the energy specialization of waste legislation and reflection of the specifics of waste as secondary energy resources in related energy legislation are the basis for forming a comprehensive economic and legal mechanism of secondary energy use, united by a common goal and principles of operation.

Economic and Legal Mechanism of Secondary Resource Use in Energy

Inside the country, a number of factors objectively determines the stage of particular resources for energy production usage: natural and climatic, political, economic and legal (Джумагельдиева, 2011: 374). Determinant for the development of secondary resource use is the economic and legal factors, which implies the existence of an effective legal mechanism, based on system of economic incentives. Thus, the economic and legal mechanism of secondary resource use in energy can understood as a system of legal means of influencing the parties to the relationship, which encourage them to behave in a socially useful purpose, creating a regime of assistance to meet the individual interests of subjects. The functioning of such a mechanism is effective if provided the whole set of legal remedies and reflected in the legislation as a system. Relevant provisions of the legislation should be in such a relationship, when they do not contradict and do not duplicate each other, the action of a certain group determines a number of successive effects of other rules, and together they affect the behavior of subjects as a whole. In the legal literature, according to the consequences of the impact of incentives in the field of energy production divided into means of organizational and economic nature (organizational and legal/economic and legal).

- The organizational and legal – include the establishment of a preferential procedure for obtaining permits; gaining access to power grids.
- The economic and legal includes fixed surcharges to the tariff; guarantee of redemption of the entire amount of electricity at the auction price; tax and customs benefits; low-interest “green” loans; investment grants; allocation of land for the construction of renewable energy facilities with certain technical parameters and technical conditions for connection to

the electricity grid; termination of incentives and application of measures of responsibility for violation of the legislation on stimulation of energy production with the use of alternative sources, etc.

In general, the legislation regulating certain aspects of the relationship of secondary resource use in the energy sector uses the same classification. However, being dispersed in legislation because of different regulatory objectives, with the uncertainty of the overall goal, these tools are not a system and do not form a single mechanism. This, in turn, prevents the formation of functional links between the norms of energy legislation, which they provide for and the norms of environmental, natural resource, tax legislation, which should facilitate their implementation. A systematic approach to the formation of the economic and legal mechanism of secondary resource use in energy can be ensured by introducing into the current legislation the criteria of sustainability as a basis for the application of legal means to influence the parties.

The basis for the formation of a system of sustainability criteria is the provisions of EU Directives 2009/72/EU on common rules for the internal market in electricity and 2018/2001/EU on the promotion of renewable energy. These criteria should be the basis for permitting construction of new generating capacities, connection to networks, and approval by local executive bodies or local self-government bodies of the location of energy facilities on the territory subordinated to them. In addition, it will include application of restriction, temporary prohibition (suspension) or termination of activity of such objects, conducting tenders for the construction of new generating capacity and implementation of demand management measures, application of incentive measures.

Based on the content of these Directives, the target criteria of sustainability can divide into groups: economic, technical, social, environmental criteria. *Economic and technical* will provide an assessment of the economic effect of the project for the system as a whole; reliability of payback of the project, which will ensure the stability of investment; compliance with technical requirements taking into account the optimal ranges of operation of the power system and energy security factors. *Social* criteria includes a preliminary analysis of the economic consequences of the project for the consumer, including opportunities for using local production facilities to form an affordable market for equipment for the energy company. Social criteria based on indicators of additional jobs, fulfilling the obligation of the energy supplier to inform the population (end consumers) in an accessible form with

a certain frequency about the structure of the fuel balance of the enterprise, indicating the share of each energy source, environmental impact, emissions of harmful substances and greenhouse gases. *Environmental* criteria should take into account the energy efficiency of the project; the contribution of generating capacity to reducing emissions; waste generation; rational use of land resources. It is advisable to determine the normative definition when considering a specific range of issues of priority of application of a certain group of criteria and the establishment of the relevant obligations of generating enterprises.

According to these criteria, the competences of local executive bodies and local governments can be agreed concerning the location of electricity facilities under their jurisdiction (Article 10 of the Law of Ukraine "On Electricity Market"), the process of approval would harmonized and the procedure for environmental impact assessment would specified (Закон України від, 2017: 2059-VIII). Failure to comply with the criteria of sustainability and the corresponding obligations may be considered as grounds for restriction, temporary ban (suspension) or termination of energy enterprises (Article 14 of the Law of Ukraine "On Electricity Market"). Thus, the implementation of these criteria creates as a basis for improving the rules of legal responsibility in the field of energy, subject to the harmonization of special legislation with the general rules of the Economic Code of Ukraine on administrative and economic sanctions; determination of the exhaustive range of authorized bodies and the procedure for bringing to justice. Preliminary analysis showed that among the elements of the economic and legal mechanism of secondary resource use, state aid will be significantly effective, the transformation of which from sectoral to horizontal will promote investment in relevant technologies without distorting competition (Ліллемяе, 2014: 46–60; No. 2014/C/200/01). Taking in to consideration all mentioned above, it is relevant to monitor the experience of European countries in the application of tax incentives. There is need to focus on environmental modernization of industrial enterprises by reducing the environmental tax rate or in the form of a fixed annual amount of compensation (tax refund); introduction of energy taxes with simultaneous replacement (or reduction due to them) of taxes on labor and capital. Among that there is need to establish indirect benefits – in the form of accelerated depreciation, which is a more effective way to intensify investment and innovation activities, as the entity receives benefits only after the actual investment (Дутов & Сидоренко, 2017: 37–50). For such countries as Ukraine is relevant the indepth analysis of the practice of introducing auctions for the allocation of support quotas (hereinafter – the

auction) to stimulate electricity producers from alternative energy sources, aimed at more predictable and sustainable development of RES, effective integration of new capacity under operational security of the integrated energy system (Постанова 2019:1175; 2020. № 10: 388).

Efficient Legal Forms of Secondary Resource Use

The organization of activities, coordination of the interests of the subjects of secondary resource use at the microeconomic level carried out within the legal form, adequate to the nature of these relations.

Thus, an efficient tool is to attract investment to the state budget to stimulate the development of strategically important sectors of the country to upgrade infrastructure, invest in technology and ensure its energy efficiency is a public-private partnership, the potential of which currently underused (Ющенко et al., 2019; Токунова, 2015). The public-private partnership in this sphere generally aims to build new utilities necessary for heat and electricity, reconstruction, construction of energy-efficient housing and energy-efficient operation of municipal housing in exchange for the right to build, construction (re-equipment) of schools and hospitals in exchange for the right commercial development and development of neighboring or other land plots. Public-private partnerships should be used to build new energy facilities, including green energy facilities. In this case, the private partner may provide project financing, the public partner - the development of permits, design and other documentation relating to construction works; the possibility of using the land for the period established by the agreement concluded within the framework of public-private partnership.

Concession as a form of public-private partnership is an effective means of attracting private sector investment (cash, technological and technical knowledge, production experience, etc.) for the construction and/or management of facilities that produce electricity or heat based on certain types of waste (wood, straw, sunflower husk, etc.). The transfer of landfills to concessions allows for the extraction of biogas from them and its further energy use (Zillman et al., 2014: 519), in Ukraine there is favorable in this regard are the provisions of the Law of Ukraine "On Concession", which, unlike the previous law, does not contain restrictions on the transfer of waste management facilities in the concession.

Some *contractual forms* can be used in the framework of state programs aimed at upgrading fixed assets of energy sector enterprises. According to these programs, the purchase of energy equipment and equipment carried

out at public expense and provided to enterprises based on leasing by open tender in the special electronic register of the profile central body of executive power in open access. An essential condition should be the ability to provide real security for the return on the cost of equipment provided, as this will encourage the formation of associations of construction companies, and at the same time to strengthen the responsible attitude to economic activity. A mandatory condition of such a *state program* should be the establishment of terms of return of funds spent on the purchase of equipment and facilities, as well as liability for non-compliance.

The experience of EU countries shows that the development of technologies in energy is changing the contractual forms associated with their use in economic activities. For example, energy saving projects for residential buildings in Germany have been implemented through such a subtype of public-private partnership as contracting. The formation of waste markets has led to the development of commercial intermediation in this area and has led to the spread of new contractual forms, in particular, outsourcing. At the legislative level, outsourcing regulation is virtually non-existent. Hence – the need to outline appropriate tools for legal regulation of outsourcing relations at the microeconomic level, the definition and essential characteristics of the most appropriate legal means in the mechanism of economic and legal regulation of outsourcing relations in the energy sector; economic and legal means that provide the optimization effect of outsourcing.

The stimulating potential of such economic and legal means as industrial and technological parks, which can be used both in combination with such economic and legal means as public-private partnership, and independently, remains unused fully.

Legal Remedies Types of Secondary Resource Use in the Energy Sector

Scope: Ukraine

It is relevant to study the provision of legal remedies for those types of secondary resource use, the use of which in Ukraine is promising given the technical capabilities and economic feasibility and has significant features.

The most regulated in the current legislation is the use of *methane gas for degassing of coal deposits* (a special law applies). However, despite the fact that Ukraine has significant, virtually undeveloped methane resources of coal deposits, ranks 9th in the world in terms of its reserves, of the

total amount of extracted methane utilized only 80 million m 3 (4% of total emissions), which is almost 4–5 times lower than European indicators (Укренерго, 2013). This is partly due to unjustified restrictions on its use – only at the place of extraction or by delivery to the final consumer through gas transmission networks, including as a mixture with natural gas (Article 7 of the Law of Ukraine "On Gas (Methane) Coal Fields") opportunities to produce and supply heat and electricity. Another problem is the inconsistency of the tax incentives declared in the special Law with the norms of modern tax legislation. The regulatory mechanism for the implementation of joint implementation projects, within which methane law can finance mining, needs to be significantly updated.

Biomass is playing an increasingly important role in the energy of those countries that seek to improve their energy security, contribute to climate protection, ensure a high quality human environment and improve the use of resources in general. However, in Ukraine the legal regulation of biomass use is based on the outdated concept of alternative energy development, which does not provide a differentiated approach to stimulating and limiting certain areas and segments of such energy, given their environmental, energy, social and other sustainability indicators (Трегу, 2019: 49–57). The framework for implementation of SER in the economy is EU legislation. Based on the provisions of Directive 2009/28/EU, biofuels covered by the Directive must meet the sustainability criteria. Establishing such criteria for biofuels is a priority for modernizing the legal regulation of biomass production and use based on sustainable development. In addition to the introduction of the actual criteria, it is necessary to adapt the energy and related legislation (forest, land, agriculture, etc.), which applies to certain aspects of production and use of biomass, which is to eliminate inconsistencies, obstacles to the application of criteria, establishing targeted links between them and the rest of the law. In order to maintain a balance acceptable to the state between the foreign and domestic market of the product, it is necessary to stimulate domestic demand for it, in particular by providing a green tariff only to those electricity producers that consume sustainable biofuels.

The energy use of household waste. EU legislation tends to increase the "pressure" on such activities, in particular by increasing the operation requirements of incinerators (Directive 2010/75/EC) and encouraging Member States to introduce payments and restrictions on waste incineration. A modern alternative to incineration of household waste is the production of solid renewable fuel (known as RDF fuel). However, a prerequisite for the production of RDF fuel is a well-established scheme of separate waste

collection. Even at the initial stage, the population must select all hazardous (batteries, pharmaceuticals, mercury-containing items, etc.) and recyclable elements (paper, metal, glass and plastic). Therefore, one of the priority steps towards regulating the relationship on the production of RDF fuel based on sustainable development is to establish requirements for the composition and properties of this fuel, harmonized in particular with the European standard EN 15359: 2011 "Solid Renewable Fuels (SRF). Specification and classification". In addition, at the legislative level, it is necessary to develop criteria for the feasibility of producing RDF fuel in order to optimize the number and geographical location of plants for the production of this fuel and to prevent future overcapacity and shortage of raw materials. The risks associated with the implementation of EU law on separate collection and recycling of household waste also need to be assessed. Such changes will increase the inflow of investment in more advanced technologies, the introduction of which may reduce the profitability of RDF fuel production.

Thus, the environmental and other benefits, as well as EU legislation on waste and in the field of RES, the deepening of energy use of household waste of organic origin formed the basis for RES usage.

In this perspective, the energy properties of bio-waste (biodegradable waste) and biogas contained in landfills and landfills deserve attention. Reducing the volume of bio-waste disposal is a key goal pursued by EU waste legislation (Directive 2008/98/EC; Directive 1999/31/EC). In sorted form, such waste can be a raw material for the production of liquid and gaseous fuels, in particular for cogeneration plants. It should be noted that Ukraine is obliged to bring the regulatory requirements for its landfills and landfills in line with Directive 1999/31 / EC on the disposal of waste, including the collection, treatment and use of gases on those of them that accept bio landfills and waste.

Conclusions and Recommendations

The experience of EU countries shows that the development of technologies in energy is changing the contractual forms associated with their use in economic activities. For example, energy saving projects for residential buildings in Germany have been implemented through such a subtype of public-private partnership as contracting. The formation of waste markets has led to the development of commercial intermediation in this area and has led to the spread of new contractual forms, in particular, outsourcing. At the legislative level, outsourcing regulation is virtually non-existent. Hence – the need to outline appropriate tools for legal regulation of outsourcing relations at the

microeconomic level, the definition and essential characteristics of the most appropriate legal means in the mechanism of economic and legal regulation of outsourcing relations in the energy sector; economic and legal means that provide the optimization effect of outsourcing.

Finalizing this part of our research on legal issues of using of secondary sources in energy sector, we introduce the five steps methodology for assessing the implementation methods and challenges:

1. Economic and legal essence of secondary resource use. The focus should be on the following tasks:
    - Studying the economic and legal nature of secondary resource use;
    - Clarifying the content, the state of legal regulation of relations in this area;
    - Defining the integrated purpose and principles of legal regulation of secondary resource use in energy.
2. Peculiarities of the legal regime of secondary sources in the energy sector. The following issues that need to faced:
    - Identification of the features of the legal regime of secondary resources in the energy sector;
    - Clarification of the areas for strengthening the energy specialization of waste legislation;
    - Designing the means of reflecting the specifics of waste as a source of energy in energy legislation
3. Economic and legal mechanism of secondary resource use in energy. The above arguments are due to the implementation within this stage of the study of the following tasks:
    - Studying the system of legal means (organizational and economic-legal) of attracting secondary resources into economic circulation;
    - Determine the conditions for the effective functioning of the economic and legal mechanism of secondary resource use;
    - Point the directions of modernization of legal support of secondary resource use in energy in accordance with the requirements of sustainable development
4. Efficient legal forms of secondary resource use. This stage of the study of the following tasks:
    - Identification of efficient legal forms of attracting secondary resources into economic circulation, which have been formed in domestic practice;

- Adopting the EU experience and existing best practices for identifying identify the latest contractual forms suitable for the purposes of ensuring secondary resource use in energy.

5. Forming the legal framework for certain types of secondary resource use in the energy sector will focus on
   - Determination of the specifics of providing legal remedies types of secondary resource use in the energy sector;
   - Substantiation of directions of its modernization for the purpose of maintenance of sustainable development of this sphere

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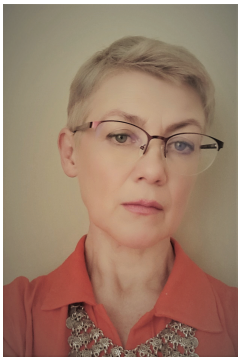
Biographies

Liubov V. Zharova is a Doctor of Science in Economics, Prof. Wyższa Szkoła Ekonomiczno – Humanistyczna (Poland), Head of department of Ukrainian American Concordia University, worked with the State Fund for Fundamental Research of Ukraine, the Ministry of Ecology and Natural Resources of Ukraine, the Ministry of Economic Development, Trade and Agriculture of Ukraine, the European Bank for Reconstruction and Development, and the UNDP. L. Zharova obtained a Ph.D. in Economics (“Productive Forces and Regional Economics”) in 2005 and was awarded the academic title of Senior Researcher in “Economics of Nature Management and Environmental Protection” in 2007. In 2013, she defended her doctoral research thesis “Macroeconomic regulation of environmental policy: theory, methodology, practice” and was awarded a Doctor of Science degree in Economics

("Economics of Nature Management and Environmental Protection"). Sphere of professional interests sustainable development, green economics, macroeconomics trends, governance.



Natalia V. Eremeeva PhD Law, Institute of Economic and Legal Research of NAS of Ukraine, Head of department of Economic and Legal Studies of Economic Security and Safety Issues carries out the scientific and applied research, the scientific expertise and counseling in the sphere of legal support of the economy, legal regulation of economic activity; main directions of scientific activity: economic law; scientific and practical activities for the modernization of economic legislation; legal providing of energy safety

Aleksander Sapiński, PhD in two disciplines: security studies and literary studies. Received a master's degree in international management, administration, and English language and culture studies. Currently works as an academic lecturer at the Bielsko-Biała School of Finance and Law(Poland). He is the president of the NGO Żywiecki Institute of Social Economy

and president of the NGO Beskidzkie Association of Ecological Production and Tourism BES PROEKO. His research interests focus on management, security studies, ecology and social responsibility.

Sabina Sanetra-Półgrabi, PhD in humanities in the discipline of political science, assistant professor in the Department of Administrative Sciences and Public Policy at the Institute of Political Science and Administration (INPA) of the Pedagogical University in Kraków. D. thesis entitled. D. dissertation "Functioning of Euroregions in the Southern Polish Borderland and Integration of the Borderland Community after 1993. Comparative analysis of three Euroregions: "Śląsk Cieszyński", "Beskidy" and "Tatry" defended in 2012. Since 1 October 2013 employee of the KEN Pedagogical University in Krakow. Graduated in administration (2003), international relations (2005) and political science (2006). She also completed studies in Slavic languages and culture at the Jagiellonian University in Kraków (2008). Her research interests include: issues of transboundary cooperation with particular emphasis on Euroregions in the southern Polish border area and the system of local security and crisis management, including cooperation on border rivers.