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**REGIONAL POLITICS OF ENERGY SAVINGS
AND INSTRUMENTS OF ITS REALIZATION**

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The article deals with theoretical and methodological foundations and applied aspects of the regional policy of energy saving aimed at the efficient use of energy resources in the region, diversification of energy supplies, modernization of energy infrastructure through the introduction of new technologies and protection of regional interests in the energy sector. The basic approaches and methods for the formation of regional policy of energy saving are determined. It allows deepening and expanding of the basic applied researches, and solving of more complex theoretical and applied problems of regional development. It is mentioned, that the development of regional energy saving policy involves the formation of appropriate legal, financial and credit policy; scientific research, economic, organizational and management measures; advertising and marketing support. It is proved, that for the practical implementation of regional policy the complex combination of economic feasibility, social effectiveness and environmental safety is required.

Keywords: *energy security, energy conservation, energy efficiency, energy saving regional policy, fuel and energy resources diversification, decentralization.*

Introduction. Energy security is one of the most important components of economic and national security of Ukraine. Energy security should be viewed as a purposeful influence of the subject of management on the threats and dangers, the establishment of necessary and sufficient conditions by the state and non-state institutions in order to prevent the supply shortage of economically accessible fuel and energy resources of acceptable quality under normal and emergency conditions, consistent and active policy of energy saving and energy products diversifying, ensuring of the effective functioning of energy security subsystem [1, p. 19].

In today's world, the energy security is global in nature. Therefore, the issues of its providing should be considered through the joint efforts of all the countries in the world. In this case, the means and mechanisms of achieving energy security should

be chosen by each country itself. As much as both foreign experience and groundwork of the world scientific community do not provide reliable recommendations on specific practical measures that would be standardized, and their usage at the level of any country would guarantee the energy security.

Each state has its own peculiarities and views on the development of existing energy potential and ensuring of its own energy security. This fact can be understood if we pay attention to the differences of individual countries and regions regarding the levels of security of energy resources, access, volumes and efficiency, solvency etc.

The modern stage of economic development of Ukraine shows the signs of its energy dependence. However, at a high level of dependence on external supplies of natural gas, oil and nuclear fuel, the monopoly of a single supplier, the actual absence of supply sources diversifying of imported fuel and energy resources, as well as the low efficiency of their use raise a deep concern. While determining the ways of the country's crisis recovery and transition to a path of sustainable socio-economic development, the task of qualitative transformation in the energy sector of the national economy shows a great importance. It should be taken into account that changes in the energy industry are among the most complex processes in the terms of implementation of state economic policy [2, p. 195].

Analysis of recent researches and publications. The issues of energy security are of the prime concern for the national economy being the one of the most energy-intensive countries not only in the post-Soviet space, but also in the world. In Ukraine, the works of V. Geeta, V. Evtushevskaya, S. Ermilov, N. Kowalke, T. Serdiuk, A. Land, A. Shydlovsky and others are dedicated to the study of state policy problems of energy saving and energy efficiency. Scientists suggested the ways of improvement of public administration mechanisms.

Previously unsettled problem constituent. They studied the objectives, content and types of administrative actions for different spheres of regulation of business entities. However, the attention of scientists has been focused mainly on the studying of the energy efficiency of the economic complex of the country as a whole, that is why the territorial study of the energy efficiency and energy saving process and its management at the level of particular region is an urgent task and requires the development of its own methodological and methodical apparatus. The issues of incentives and financial support for regional measures for promoting energy efficiency and energy saving, as well as the adaptation of domestic legislation to the standards and requirements of the European Union remain to be insufficiently studied.

Main purpose of the article is to study theoretical and methodological foundations and applied aspects of formation of regional energy conservation policy aimed at the effective use of energy resources in the region, the diversification of energy supplies, upgrading of energy infrastructure on the basis of introducing the

latest technologies and protection of regional interests in the energy sector.

Results and discussions. Development of socio-economic systems in the context of enhancing energy security of Ukraine should be based on the development of effective regional policy of energy saving, which would take into account the regional peculiarities of the allocation, adoption and use of energy resources. The integrated nature of the regional studies is connected with the necessity of applying various approaches and methods to the formation of regional policy of energy saving, which allows to deepen and broaden fundamental and applied research, as well as to solve theoretical and applied problems of regional development. Among the main approaches are the following [4, p. 47–58]:

1. Spatio-temporal approach, according to which the efficiency of fuel and energy resources use in the region is mainly determined by the level of their providing and location in reference to the centres of resources.

2. The genetic approach provides an opportunity to identify the genesis of regional systems in the process of historical development. Identifying the ways of region's development, we are able to explain the peculiarities of its current state, define the prospects of development and reveal its dynamics. The study of evolutionary processes is necessary to identify the location of industrial and infrastructure facilities, their concentration or spreading, relocation patterns, the nature of the recovery processes that have a significant impact on the intensity of energy conservation process in the region. According to this approach, the regional policy of energy saving will be developed on the basis of retrospective state of the regional economy development, taking into account the incapacity of fuel and energy complex to meet the needs of economy and population of fuel and energy, existing debt obligations for consumed energy products, further accumulation of problems in the energy sector, which may undermine the foundations of economic security and cause social destabilization in the region and the country as a whole.

3. The use of geo-systemic approach in the regional research allows to deeply explore the construction of complex object formed from simpler, linked in organic way. Basing on the laws of system building, its future development can be simulated. Geosystems include holistic formations of interrelated elements whose functioning depends on their placement on the territory and the quality of the environment. The ability of geosystems to respond to external stimuli suggests the possibility of its managing. Depending on the speed and scales of the change, the state of a managed landscape system can be defined as optimal, critical or catastrophic. Such a differentiation may be useful for evaluation of the condition of controllability of “problematic” regions and development of a regional energy conservation policy.

4. Reproductive approach involves the comprehensive study of regional systems as a mutually agreed combination of internal elements (subsystems). However, any complex group is characterized by the presence of not only internal, but also external

relationships. Therefore, the study of regional peculiarities of the fuel and energy supply will be aimed at creating conditions for the efficient use of energy resources, renewable energy and alternative fuels.

5. Problem-based approach. Understanding of the problem as the concentrated expression of the contradictions of the space-time development determines the content of the problem-based approach, that is essential for the formation of regional policy. Therefore, according to this approach, the development of a regional energy conservation policy should be aimed at solving the problems of energy saving in the region and problems arising during policy implementation.

Thus, the regional energy conservation policy is a set of organizational, legal and economic measures that are implemented by regional authorities for the implementation of current and strategic objectives of improving the efficiency of fuel and energy resources use of the region, diversification of energy supply products and modernization of energy infrastructure through the introduction of new technologies. It should be considered as a set of successive stages, the main of which is the formation of regional strategies of energy saving, oriented not only to consuming reduction of energy resources in physical dimension, but also to reduction of the financial costs and meeting the requirements for environmental protection and related target programs as a tool for implementation of regional policy of energy saving.

It is expedient to mark, that strategies of energy-savings and even corresponding chapters in strategic documents of socio-economic development of many regions of Ukraine have been absent up to now. Partially it is explained by insufficient base of existent methods and tools of forming and realization of regional strategies of energy-savings. Moreover, the current analysis of regional programs of energy-savings has showed, that these programs do not take into account the particularity of Ukraine's regions and essentially are not strategic programs, but a set of specific organizational and economic measures on energy saving, the realization of which takes place mainly due to budgetary funds.

The incomplete financing and ineffectiveness of the stated instruments of stimulation of energy-savings at regional level predetermined the insufficient level of its implementation. Actually determined and estimated by the program potential of energy-savings appeared to be a regular document, that did not come to its practical introduction and implementation [3, p. 54].

While developing and implementing regional policy of energy savings it is foremost necessary to define its primary purpose. It is expedient to examine the following approaches to forming the aim:

– social, when the primary purpose of policy implementation is the most complete satisfaction of power needs of region in fuel and energy resources, increase of level of social security and labour protection on the enterprises of fuel and energy complex;

– economic, which primary purpose is providing of demand and maximal economic advantage of separate objects of fuel and energy complex, as well as the population and region on the whole;

– ecological, the aim of which is to provide the decline of negative influence of production processes and use of energy resources on the environment.

Thus, the complex combination of financial viability, social efficiency and ecological safety is required for practical realization of regional policy of energy-savings. Regional policy of energy-savings must be directed to the achievement of technically reliable, stable, cost-justifiable and ecologically acceptable providing of energy resources to economic and social sphere of the region. Furthermore, the conditions for forming and implementing of defence policy of regional interests in the energy sector.

However, in business practice this mechanism becomes more complicated due to the absence of effective regional management, unsettled mechanisms of cooperation between regions and state, and between regions in the form of economic entities and legal entities. Foreground job in this plan is the decentralization of power and expansion of powers of regions while accepting and implementing decisions related to the problem solving of regional development in the sphere of effective use of energy resources and energy-savings. The second one is the creation of favourable regulatory terms for development and implementation of investment projects for a research and introduction of perspective energy effective and energy keeping technologies. The solution for the problems of functioning and balanced development of fuel and energy complex of the region envisages the removal of the excessive politicizing of power sector, and also the conflicts between influential political forces, financially-industrial structures and criminal organizations for the control over this strategically important sector.

Among the basic tasks of regional policy of energy-savings the following should be enumerated:

– meeting the needs of economy and population of region for fuel and energy resources in objectively necessary volumes;

– diversification of import sources and ways of energy products supply;

– increase of energy efficiency and decline of energy consumption in all sectors of economy;

– introduction of innovative technologies in the processes of production, processing, transporting and consumption of energy resources;

– forming of the effective investment policy, directed to the development, exploration and use of fuel and energy potential of the region;

– development of alternative energy, increasing of the share of alternative energy sources in the general energy-savings of industries of the economy of region;

– gradual and systematic establishments of economically reasonable tariffs, the

action of which must be directed to stimulate and reduce the energy consumption, introduction of processes of energy-savings and attracting investments to the power infrastructure [5];

– reduction of harmful influence of objects of fuel and energy complex on the environment and population of the region in accordance with internal and international requirements.

Realization of the stated tasks of regional politics of energy-savings allows to create the necessary terms for further development of fuel and energy complex of the region and increase of own production of hydrocarbons.

Basic principles of forming of regional policy of energy-savings are:

– principle of purposefulness, according to which the regional policy should be sent to realization of the milestones of developing the fuel and energy complex of the region, set by the corresponding strategy of development;

– principle of scientific character. Regional policy of energy-savings should be based on scientific groundworks;

– principle of the system, the aim of which is considering the region as a system comprising the economic, social and ecological components. So, while implementing the policy, it is necessary to provide the increase of energy efficiency and decline of energy consumption in all sectors of economy and region on the whole;

– principle of randomness, that predetermines the changeability of parameters of forming and implementation of policy of energy-savings;

– principle of adaptivity, which determines the necessity of adaptation of regional politics of energy-savings to the conditions of fuel and energy complex operating.

Development of regional policy of energy-savings envisages the forming of corresponding regulatory, financial and credit policy; conducting of scientific researches, economic, organizational and administrative measures; advertising and informing, and marketing support.

Regulatory and legislative instruments of realization of policy are the following:

– development of rules of obligatory certification, standards and norms of safety and efficiency of work of fuel and energy facilities and installations;

– development and realization of transparent and effective regulatory base of functioning of fuel and energy complex and mutual relations in the sector of a fuel and energy, that envisages the regulation, coordination and control over the state power systems, atomic energy and natural monopolies;

– make changes and amendments to the legislative and regulatory acts to guarantee and control the reliable and full energy supply for economy and population of the region at ordinary terms and in a minimally necessary volume in the case of emergencies by public authorities of executive power and local authorities. Financial and credit leverages of policy implementation are:

- direct financial support for the increase of energy efficiency and decline of energy consumption in all sectors of economy;
- selective financial support;
- governmental grants;
- direct subsidies (grants, additional payments) for the solution of regional development problems in the sector of the effective use of energy resources and energy-savings;
- leasing, performance contracting;
- credits for introduction of energy keeping projects in industry and public sectors.

Organizational instruments include:

- targeted regional programs of energy-savings development;
- planning and forecasting of economic and social development on the basis of the rational use and reprocessing of own fuel and energy resources of the region, diversification of import sources and ways of supply of energy products;
- increase of technological and informative level of production, processing, transporting and consumption of energy products; implementing of the newest technologies of the horizontal drilling and equipment for powerful formation hydraulic fracturing;
- effective control of strategic stocks of energy resources, that predetermines choice diversification of fuel and energy type; prevention from the inefficient use of energy resources;
- preparation and retraining of skilled staff and scientific specialists.

Economic instruments comprise the following:

- tax policy (tax types, tax rates, privileges). World experience confirms the tendency of the repressing use of mechanism of reduced rates of taxation (50%) and tax concessions (20%). Such mechanisms as taxation of equipment or cars with the low level of energy efficiency (13%) and the accelerated depreciation (7%) are not so vividly used [6, p. 50];
- standardization and certification of quality and environmental safety of mineral deposits in accordance with the current legislation as well as the efficiency of energy facilities and installations;
- quotas and licenses;
- using of public procurement for energy-efficient equipment for the public sector by local authorities that will encourage producers of energy-efficient equipment and promote the market for energy-efficient appliances and technologies [7, p. 124];
- pricing policy, flexible tariff policy for fuel and energy resources for businesses and the population;
- differentiation of rent payments depending on factors that have the greatest

influence on the formation of the cost of the extraction of energy resources, namely, the depth of the productive deposits, coefficient of flow capacity etc.

The important value in the implementation of regional policy of energy saving have the advertising and information tools and activities:

- workshops, conferences, presentations of scientific and technical developments with foreign representatives. Executive and local authorities are interested in this practical implementation.

- the formation of a unified information system, which will be the data medium of the functioning and development of industries and enterprises of fuel and energy complex;

- introduction of innovative technologies in the processes of production, processing, transportation and consumption of energy resources in order to increase the energy efficiency and reduce energy consumption in all economic sectors;

- promoting of the effective network titled “education-science-production”, supportive innovation centers, technology transfer centers and other forms of joint efforts of science, education, production and financial capital (involving SMEs);

- qualitative advertising policy to promote experience on energy saving and to form population's energy saving outlook.

Organizational and managerial events are aimed at determining the organizational structure of policy implementation and the method of distribution and delegation of responsibilities within it, the implementation of the current control and monitoring. The involvement of consulting services makes the policy implementation simpler and more understandable for performers.

Conclusions and further researches directions. Therefore, the development of regional energy saving policy must take place taking into account the peculiarity of each region and preconditions for the development of its fuel and energy sector. The main goal of regional policy is to provide quantitative and qualitative changes in the production structure based on the increase of the volume of capital assets, stimulation of innovative approaches and programs at both the regional and the national level in general. Implementation of effective measures in this area is impossible without the use of appropriate financial, material, intellectual and other resources, as well as the stimulation of scientific developments.

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**РЕГІОНАЛЬНА ПОЛІТИКА ЕНЕРГОЗБЕРЕЖЕННЯ
ТА ІНСТРУМЕНТИ ЇЇ РЕАЛІЗАЦІЇ**

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У статті досліджені теоретико-методологічні основи та прикладні аспекти формування регіональної політики енергозбереження, спрямованої на ефективне використання паливно-енергетичних ресурсів регіону, диверсифікацію джерел енергопостачання, модернізацію енергетичної інфраструктури на основі впровадження новітніх технологій та захисту регіональних інтересів у сфері енергетики. Визначено основні підходи і методи до формування регіональної політики енергозбереження, що дозволяє поглибити фундаментальні та розширити прикладні дослідження, вирішувати все складніші теоретичні і практичні завдання регіонального розвитку. Зазначено, що розробка регіональної політики енергозбереження передбачає формування відповідної нормативно-правової, фінансово-кредитної політики; проведення наукових досліджень, економічних, організаційно-управлінських заходів; рекламно-інформаційного та маркетингового забезпечення. Обґрунтовано, що для практичної реалізації даної регіональної політики необхідне комплексне поєднання економічної доцільності, соціальної ефективності та екологічної безпеки.

Ключові слова: *енергетична безпека, енергозбереження, енергоефективність, регіональної політики енергозбереження, паливно-енергетичні ресурси, диверсифікація, децентралізація.*

**РЕГИОНАЛЬНАЯ ПОЛИТИКА ЭНЕРГОСБЕРЕЖЕНИЯ
И ИНСТРУМЕНТЫ ЕЕ РЕАЛИЗАЦИИ**

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В статье исследованы теоретико-методологические основы и прикладные аспекты формирования региональной политики энергосбережения, направленной на эффективное использование топливно-энергетических ресурсов региона, диверсификацию источников энергоснабжения, модернизацию энергетической инфраструктуры на основе внедрения новейших технологий и защиту региональных интересов в сфере энергетики. Определены основные подходы и методы к формированию региональной политики энергосбережения, что позволяет углубить фундаментальные и расширить прикладные исследования, решать все более сложные теоретические и практические задачи регионального развития. Отмечено, что разработка региональной политики энергосбережения предполагает формирование соответствующей нормативно-правовой, финансово-кредитной политики; проведение научных исследований, экономических, организационно-управленческих мероприятий; рекламно-информационного и маркетингового обеспечения. Обосновано, что для практической реализации данной региональной политики необходимо комплексное сочетание экономической целесообразности, социальной эффективности и экологической безопасности.

Ключевые слова: *энергетическая безопасность, энергосбережение, энергоэффективность, региональная политика энергосбережения, топливно-энергетические ресурсы, диверсификация, децентрализация.*