

ABSTRACT

Bilous L. B. Energy resources factors for managing the economic development of the region. Qualification scholarly paper: a manuscript.

Thesis submitted for obtaining the Doctor of Philosophy degree in Management and Administration Sciences, Specialty 073 – Management. – V. N. Karazin Kharkiv National University, Ministry of Education and Science of Ukraine, Kharkiv, 2021.

The thesis is devoted to substantiation of theoretical positions and development of methodical approaches and recommendations of increase of efficiency of energy resources of management of economic development of region. The paper investigates the theoretical and methodological principles of managing the economic development of the region through the efficient use of energy resources. The conceptual preconditions and aspects of effective management in the field of energy resources are revealed: their structure and dynamics of consumption, legislative, scientific theoretical and practical aspects of management are investigated.

Conceptual approaches to the formation of energy efficiency are generalized. Ukraine's resource use policy is characterized by programmatic and legislative initiatives that have a direct impact and regulate the use of nature, waste management, use and distribution of energy resources, and introduce a system of energy efficiency measures. The European integration component of this policy is highlighted, which is ensured by updating the normative legal acts of Ukraine in correlation with the strategies and directives of the EU. The analysis in the context of scientific, theoretical and practical approaches allowed to trace the modification of energy consumption and the shift of the role of energy resources. The functional significance of energy resources is justified by the change of conceptual approaches and perspective directions of formation of efficiency of certain factors, which are systematized in the work of three stages from the fifties of the last century to the present.

The concept of smart is proposed as an element of economic development management and a center of innovation in regional strategies. The concept is characterized as a system capable of efficiently consuming energy resources using advanced innovative technologies. Foreign examples and principles of functioning of such systems and problems which they are capable to solve are considered. The concept of smart as a tool for implementing strategies is defined. Foreign scientific experience is generalized and obstacles that can significantly affect the implementation of strategies in Ukraine are systematized. The analysis of regional strategies identified the focus of planning in twenty-five regions mainly on human development and the creation of a competitive economy, to a lesser extent on the development of rural and suburban areas, environmental security, and business development. In order to balance and modernize long-term planning, a conceptual approach to the formation of regional strategies based on the introduction of the concept of smart and development of own smart specializations is proposed, which accelerates economic development of the region due to innovation and growth of competitive advantages.

The methodical approach to an estimation of efficiency of energy resources of management of economic development is substantiated. The proposed research algorithm provided for dual assessment of energy efficiency, which allowed to track the shift in the role of energy factors in managing economic development from the state to regional and local levels, changing managerial approaches and mechanisms in implementing a qualitatively new energy structure and introducing innovative energy technologies. At the same time, to study the resistance of the external environment to new energy efficient technologies and to classify these obstacles as energy efficiency barriers for Ukraine, which makes it possible to identify ways to minimize barriers to increase the productivity of energy technologies.

The main aspects of energy resources management in Ukraine and Europe in terms of the introduction of innovative technologies under the influence of global trends are summarized. The structure of energy consumption and prospects of its replacement against the background of global energy changes are shown.

Substitution towards the principles of a green Europe is seen as a prospect for the expansion of renewable energy, hydrogen energy, the introduction of converged technologies and the decarbonisation of the economy. The new principles of electricity generation, distribution and consumption are presented as a smart grid system, which with green IT is the basis of smart cities. Prospects for energy resources management in the introduction of the principles of circular economy and CSR in all sectors of society are revealed. Trends and factors of transformation of energy markets in the changing world in the face of global challenges, the impact of such transformations on Ukrainian energy priorities and changes in the structure of fuel and energy are systematized.

The introduction of the smart concept in the studied subjects is substantiated and the factors of the concept against the background of rising energy prices are determined. The dynamics and the main reasons for such growth are traced and systematized. The analysis of separate communities of the Kharkiv region in the conditions of decentralization in the context of practical implementations on minimization of consequences of growth of the prices for energy carriers is carried out. The methods used by the communities to optimize energy consumption have been systematized, and the innovative component of the implemented measures has been singled out. It is determined that the innovative technologies used by communities include elements of the concept of smart: smart energy and smart government.

The conceptual and categorical apparatus of energy resources factors of economic development management is specified in the work. The separation of operational categories «energy saving», «energy intensity», «energy efficiency» as factors of the dynamic state of energy resources involves the creation of a tool base for energy management at the regional and local levels and dictated by the need to differentiate between measures to determine such energy efficiency.

The analysis and substantiation of the peculiarities of the use of energy resources by local entities (communities, city and village councils) in the period of decentralization allowed to assess the peculiarities of the management of energy

efficient development of the region in the new conditions. The dynamic state of energy resources is studied: change of structure and quantity of consumption, creation of alternative sources of energy supply. Systematization of introduction of infrastructural and energy resources of economic development is carried out. The energy-efficient component of strategic plans and practical implementations is singled out as an example of effective and smart energy management at the local level. Based on the analysis and generalization of the existing strategic directions of economic development, in order to expand the strategic orientations of the studied subjects, recommendations are given for the development and improvement of strategies detailing the energy efficiency direction.

The gap of energy efficiency in the socio-economic model of Ukraine caused by energy efficiency barriers has been identified. The taxonomy of S. Sorrell energy efficiency barriers is considered and the reasons that hinder the promotion of energy efficient technologies in Ukraine are classified through the terminology of barriers. The study identified nineteen energy efficiency barriers, including the formation and naming of a new group of transition barriers. The taxonomy of barriers determined in the conditions of Ukraine characterizes the resistance of the external environment to energy efficient technologies, due to the imperfection of the socio-economic environment in which specific energy efficient technologies are introduced.

The role of grant funding in identifying energy efficiency barriers and increasing the productivity of energy efficient technologies in the studied subjects is determined. The taxonomy of energy efficiency barriers was used as a system of economic analysis to identify barriers (barriers) to energy efficiency in the studied subjects. Grant funding is systematized and differentiated according to the barriers it mitigates. Dominant barriers, most attention barriers, and grant failures have been identified, and the latter have been identified as barriers not covered by grant funding. Taken together, the definitions indicate the necessary areas of financing of socio-economic infrastructure in order to minimize the gap between energy efficiency in the introduction of energy efficient technologies.

For further implementation, an approach to assessing the ability of the subjects to perceive and promote innovative energy efficient technologies is proposed, which is based on improving the calculation of the generalized integrated indicator with subsequent ranking by the generalized desirability function of Harrington. In the course of the research, new primary indicators of energy efficiency were identified, which formed the basis for the calculation of the generalized integrated indicator of innovative energy efficiency of the studied subjects. The ranking of the generalized integrated indicators substantiates the management recommendations provided to the studied subjects on energy efficiency implementations in accordance with a certain level of economic development.

The conceptual scheme of energy efficiency management of the region's economic development is proposed, which includes trends and factors, modern methods and tools for energy efficiency, infrastructure development, public development, which involves the use of European integration opportunities, management approaches and tools provided by the reform. the complex is designed to create an environment conducive to innovation in order to ensure sustainable development.

Key words: management of energy resources of economic development, smart concept, innovative energy technologies, alternative energy sources, energy efficiency gap, taxonomy of barriers, energy efficiency barriers, generalized integrated indicator of innovative energy efficiency.