

ECONOMIC DEVELOPMENT AND ENERGY PROCESSES: DRIVERS AND MUTUAL INFLUENCE

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In the article is investigated the process of developing of the energy sector in individual countries and globally. It was established that the peak intensity of growth of consumption of energy resources accounted to the period of active economic growth and a downward trend to reach a sufficient level of welfare and economic development. Found that global energy process is uneven and a phase of energy transition in countries with different levels of development is going on with a deviation in decades.

Keywords: *energy resources, economic development, energy consumption, energy process*

Economic growth in the world economy creates increased demand for energy resources. The quantity of production and the generation of primary and secondary energy resources increase every year as a response to the need for industrial growth in newly industrialized countries. An analysis of energy consumption of world economy over the last 40 years can serve as a proof of this assertion. The positive upward trend in energy consumption is consistent with the change of the basic determinants of economic development. However, the increase in demand for energy resources has a heterogeneous structure and diverse origin that require additional research and study.

Economic growth creates increased need to providing energy resources. The development of industry in the country is always accompanied by a corresponding development of energy. The intensity of growth in the energy sector has a strong dependence on the basic level of economic development. Energetics develops nonlinear and unevenly both in terms of time and in terms of countries. Factors that contribute the intensity of increasing of energy consumption are: the current state of the world economy (phase of the business cycle), the condition of global markets of energy resources (global energy crisis), the availability and usage of energy efficient technologies in industry and everyday life, migration of centers of consumption of energy resources to the newly industrialized countries and developing countries. Unlike the first two

factors form the short-term fluctuations in the energy supply, long-term trend in energy development determine the third and fourth factors.

Energy development on the industrial phase of development is qualitatively different from pre-industrial and post-industrial from previous periods. Concentration of different types of energy in the human activity that leads to its intensification and differentiation, until the formation of new species, which makes changing technological structures, increase installed power of labor and production processes, and the creation of industrial-type economy is characteristically for modern energetics. Key indicators of the energy process at all its phases are diversification and differentiation of energy resources. The highest phase of energy process - the energy transition is characterized with additional quality characteristics: rising share of highly efficient energy and transformed energy in the energy balance, radical change in the role and place of the energy sector in the socio-economic system, the increasing influence of energy productivity and culture of everyday life.

On the one hand, energy transition forms infrastructure of the economy and has a significant impact on the efficiency of its sectoral and territorial organization. On the other hand, any more or less significant changes in the economy, structural, technical and technological improvements in production and non-production areas effect on the quantity, level and the structure of production and consumption of energy resources. In other words, the energy transition is a process that integrates all facets of socio-economic system, including the energy basis of production, a system of location of production and direction of energy flows, social structure, the structure of employment and more. The energy transition can be described as a complex modernization process that involves extremely high by historical rates radical transformation of all aspects of social life based on "energy" principles: production, settlement and social structures. It goes on innovative qualitative change in all material, social and cultural foundations of society and its productive forces of radical changes in lifestyle and mentality of society.

As each country is on a different level of economic development, it is obvious, and the need for energy resources of each country is different. Migrating centers of developing of industry makes appropriate changes in the structure of world energetics. Particularly in developed countries there is a decrease of the growth rate of energy consumption, accompanied by a decline in economic growth. As is known, this effect is caused by the

gradual exhaustion relatively available economic resources and approaches the maximum of potential domestic production at its current technological structure. At the same time, energy consumption growth centers are countries that actively develop domestic production, and therefore require a significant increase in energy supply. Energy efficiency of technologies that used in these countries is usually lower than it is in the developed countries. Therefore, it is appropriate to allocate a tendency in shifting of centers of growth of global energy consumption.

A common trend appears slowdown rate of use of energy resources that is a affection of the combined effect of several factors, including: the slowdown of economic growth in industrialized countries; spreading the ideas of energy saving and forming of vision of energy efficient type of the national economy; increasing volatility of market of energy resources while maintaining the overall upward trend of price level; reducing of technological availability of energy resources, increased costs of their extraction and moving to the centers of consumption; changes in the structure of the energy sector for the growth of the share of alternative methods of obtaining energy resources, for which, currently, is typical understated the level of technological and economic efficiency. Such global changes are part of the energy process and become the basis of the energy transition.

As a result, the study found that countries with different levels of economic development are at different levels of the energy process. This fact leads to uneven development of the energy sector in different regions, including effect on varying intensity of energy consumption. The period of active growth is accompanied and provided by mainly extensive type of the development of the energy sector of the national economy, replaced with mostly intensive type of development in process of economic development. The concept of energy development of the country lies in the formation and implementation of objectives that correspond to the current phase of economic development. Research and forecasting of energy markets requires taking into account the features of the current period of economic development around the world.

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INTEGRATED WATER RESOURCES MANAGEMENT (IWRM) FOR SUSTAINABLE DEVELOPMENT

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Water is an essential resource for sustainable development, however it is not often taken into account. In order to find effective and lasting solutions to the problems related to water resources, it is required a new form of governance and management paradigm. This new paradigm is included into the concept of Integrated Water Resources Management (IWRM), which has been defined by *Global Water Partnership GWP*, as "a process which promotes the coordinated management and development of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of ecosystems". Thereby, the IWRM is a systematic process for the development, operation and monitoring of the uses of water