

**PROBLEMS OF INCREASING ENERGY EFFICIENCY AND ENERGY  
CONSERVATION OF UKRAINE**

*The article has examined trends and approaches of energy efficiency and energy conservation in Ukraine under current conditions.*

*Keywords: energy, energy efficiency, energy conservation, fuel and energy resources.*

**The relevance of the study.** *Energy efficiency and energy saving issue is most important to the economic development of our country in the present conditions, since the pace of economic and social development mostly depends on these problems.*

**Statement of the problem.** *Ukraine is a part of the world, whose economy is globalizing, which makes the most noticeable impact on the energy component. Trends in world energy to some extent reflected in the energy sector of Ukraine, understanding of which needs to develop an updated version of the energy strategy of the basic branches of economy of the state. Necessary requirements for renewable energy is energy efficiency and energy saving in Ukraine.*

**Analysis of recent researches and publications.** *Today the challenges of energy development in Ukraine are examined by the following scientists: Kovalko M.P., Melnik L.G., Karp I.M., Yeger D.O., Kulik M.M., Laktionov A.M., Goncharuk M.I., Draganchuk O.T., Kolomeyev V.M., Karintseva A.I., Sotnik I.M., and others.*

**The purpose of the article.** *There is still remain poorly understood problem of power in Ukraine. Therefore features and perspectives of energy require further research that will improve energy efficiency and conservation in the country.*

**The main material.** *As economy sector, energy includes the set of transformation processes, distribution and use of all types of energy production to their energy consumers inclusive. The leading role and economic importance of the energy sector is that it essentially forms the major national economic proportions. Not randomly one-third of all state investments is spent on the development of energy .*

*Estimation of energy development is carried out using key macroeconomic indicators, including:*

- The total consumption of fuel and energy resources;*
- Energy consumption per capita;*
- Energy intensity of gross domestic product;*
- The total energy consumption of industrial products;*
- The total power consumption of agricultural products;*
- Gross domestic product (GDP) per capita.*

*Analysis and comparison of these indicators in developed countries and Ukraine leads to the same conclusions. It is estimated that our country lags behind developed countries in its economic development for 27-30 years. If at the absolute volume of fuel and energy resources Ukraine can be compared , for example, to countries such as Britain and France , the energy intensity of gross domestic product of Ukraine is 10 times higher than in France , the territory and the population of which can be compared with Ukraine . Today, the energy*

*intensity of gross domestic product of Ukraine is 2-15 times higher than corresponding indicators of industrialized countries.*

*Investigation of factors and causes of high energy intensity of GDP in Ukraine allowed to distinguish among them following. First, they include those circumstances that fuel and energy complex of Ukraine, established a decade ago, was designed for cheap fuels of large stocks of the Soviet Union. Under these conditions, the design and construction of energy facilities for the effective use of energy had priority. Thus, there was saturation of energy-intensive industries in Ukraine, which led to the excess of energy intensity of GDP of Ukraine on average rates.*

*The growth of energy intensity of GDP was affected greatly by the country's transition to a market economy. During the economic crisis the focus on energy-intensive structure of national production was kept. The decline in production in the country and a high level of mental and physical depreciation of fixed assets of the fuel and energy complex, in turn, contributed to the increase in energy intensity. If by some expert estimates in 2005, the degree of physical wear and tear of fixed assets of the Ukrainian energy was about 90%, today the figure is close to 100%. In addition, the rate of disposal of used fixed assets in Energy enterprises is 6-8 times slower compared with developed countries, resulting in more than half of the units have already exceeded their design life, but still continue to operate*

*Non-payment crisis for delivered energy and lack of funds in companies are forcing them to reduce the volume of current and capital repairs of equipment, leading to an increase in specific fuel consumption for the production of the final product. Energy costs in the prime cost of production of Ukrainian producers ranged from 35 to 70 percent.*

*Irrational use of energy resources, lack of funds for modern enterprises to upgrade fixed assets, underutilization of production capacities of Ukrainian enterprises create conditions for the further reduction of energy in the country. So, today, national energy priorities are to diversify sources of energy supply, energy efficiency, switching to new technologies in the energy industry.*

*Recently, the State Agency on Energy Efficiency and Energy Saving of Ukraine presented two drafts of National Action Plan: National Action Plan for Energy Efficiency and the National Action Plan for Renewable Energy till 2020. Consideration of these plans, their content and purpose proves compliance with the task of developing renewable energy in Ukraine.*

*The main goal of the National Action Plan for Energy Efficiency is to reduce by 2020 the final energy consumption by 9% in the residential sector, the service sector, industry and transport. Calculations showed that the implementation of this plan requires funds in the amount of almost \$ 1 trillion UAH, which is impossible without the investment involvement - both domestic and foreign investors. To create the necessary conditions for the implementation of the plan there has been developed a strong regulatory framework, which not only guarantees the investor providing appropriate incentives, but also improves the overall investment climate.*

*In Ukraine today the most energy-intensive areas are such as housing, industry, transport and services, so attracted investments must be focused on solving problems in exactly these areas: housing needs around 670 billion UAH, 89933 million UAH - for bypass the industry for its modernization, 152,735 million UAH will make expenditures for renovation of transport 144.5 billion UAH goes to services.*

*Large reserves of energy efficiency and energy conservation, for example, in utilities can be realized through the introduction of alternative sources. Based on the Third*

*International Energy Forum, one of the organizers of which was the European-Ukrainian Energy Agency in the framework of the forum was a presentation of the first municipal energy plan for the city of Zaporozhye, which can be a pilot region of Ukraine to implement such projects in the period up to 2015. It is also planned to develop the city's energy plan, which for the next 15 years will determine the strategy of Zaporozhye energy conservation and energy efficiency. Implementation of innovative projects in thermo modernization of housing and buildings in the city budget can reduce the energy consumption cost in administrative buildings on 3-4 times, making the region's economy resilient even in the conditions of rising energy prices.*

*A special place in the modernization of technological equipment housing and communal services covers the transition to alternative fuels . State Program in thermo modernization of country provides for 4 years to reduce by 50% the consumption of natural gas. The program consists of several areas: modernization of the existing gas equipment , reconstruction of boiler and transport them to alternative fuels and others. For example, installation of gas boiler instead of bioboiler that runs on waste wood , halves the prime cost of heat. Annual savings is making of over three million.*

*In addition, the modernization of boiler means their gradual transition into automatic mode, since about 20% of the cost of heat is payable to employees. These funds will be spent on technical renovation of boiler.*

*The modernization of thermal management is inextricably linked with software utilities sphere of technological devices of thermal energy. All these measures will improve the basis for housing and communal services for the citizens in general.*

*Energy saving today is one of the most vital means of budgetary savings. And in solving this problem is a great place belongs to reduction of power consumption in the network, the volume of which has the impressive size - 21 billion kilowatt / hour. Calculations show that with the right approach to solving the problem, the loss can be reduced by half and save 10 billion each year. Under the terms of the development of proper mechanism for 5-7 years Ukraine will be able to achieve the level which all developed countries have.*

*The objective of the National Action Plan for Renewable Energy by 2020 is to increase by 2020 the share of renewable energy up to 11% in the energy balance of Ukraine. Meeting the proportion of so-called "green" energy has not reached 4 % yet, but at the same time, today , the industry is developing so rapidly that the dynamics of renewable energy Ukraine is the third in Europe. On September 1<sup>st</sup>, 2013, the objects of the field produced more than 1 billion kWh / year of electricity. This has been possible due to the established "green" tariff, as well as several other benefits and privileges, in monetary terms amounted to about 9 billion over the past three years.*

**Conclusions.** *Ukraine is one of the most energy intensive countries in the world. High energy intensity of GDP in Ukraine is the result of significant technological lag in most industries, slow pace of economic restructuring, inefficient use of energy resources, lack of funds for energy-saving technologies, lack of energy metering.*

*Main priorities and objectives of energy efficiency and energy saving in Ukraine:*

- Restructuring of the economy towards the reinforcement of the energy production, improving energy efficiency;*
- Development and widespread adoption of advanced energy-saving technology management systems and controls for ensuring energy conservation;*
- Creation and implementation of complete and qualitative accounting of cost of energy resources of all kinds;*

- *An economic impact on the mechanism of energy saving policy, economic sanctions for inefficient use of energy resources and incentives to encourage energy saving measures;*
- *Attracting significant investments in production using the latest efficient technologies;*
- *Suspension of inefficient in terms of energy costs production of goods;*
- *Use of waste energy.*

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