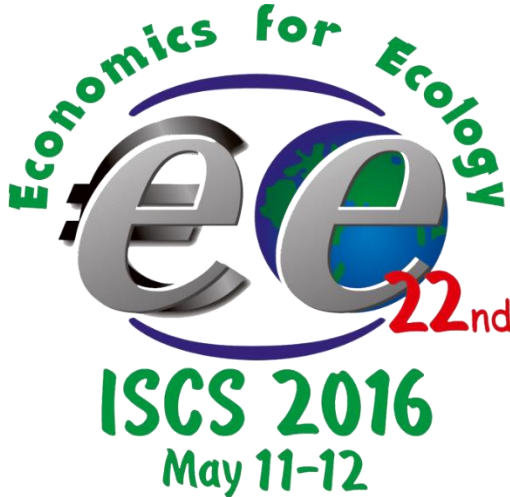


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**Економіка для екології**

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- gradual restoration of ecological balance and reduction of anthropogenic load
- improve the quality resource consumption.
- reducing the level of political dependence on foreign suppliers resources;
- widening the opportunities to the use of international agreements for activation quota trading, environmentally oriented products.

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**ENERGY EFFICIENCY AND THE ECONOMIC CRISIS**

***Olha Demianchuk, Alina Chaikivska***

*The National University of Ostroh Academy, Ostroh, Ukraine*

At this stage of the Ukrainian economy development the problem of energy shortages has escalated, as a result of resources of energy-intensive production, inefficient use of fuel and energy resources (FER), reducing own sources and increasing prices for imported ones. Economic growth in Ukraine depend on the amount of own available resources, potential of energy efficiency and energy intensity of leading industries.

The problems of ensuring economic security, energy saving and enhancing competitiveness have been investigated in the works O.S.Vlasyuka, T.V.Serdyuka, V.O.Barannika. Basic theoretical and practical achievements of V.M.Heights, S.F.Yermilov, N.V.Mytsu, V.P.Rosen, J.P.Yaschenko were devoted to the problems of reducing energy intensity of Ukraine's economy, providing industry with energy resources, substantiation of the energy efficiency.

The level of energy sector development of every country has a decisive impact on its economy and social sphere, the standard of living. Extraction of energy resources, energy production and consumption of humanity is continuously increasing with the growth in the world population, economic development and technological progress. For the last

100 years, world population has increased almost four times, and the annual extraction of the energy resources - 21 times [3].

At this tempo of growth of energy extracting resources in the next 100 years almost all fossil fuels (primarily oil and gas) in the world will run out. One of the ways to improve the situation may be managing demand for fuel and energy. Demand Management is understood in the broad sense, namely, energy management system, which includes production, transportation and consumption of fuel and energy resources (FER) to reduce their needs for the economy and population and formation of policy of promotion efficient production and energy efficiency. In other words, on the basis of reducing of demand, the energy intensity of the economy and rational use of energy by people is decreased.

Energy security is an important component of national security. In the modern world it is not enough to have the resources, for the development it is also necessary to manage them most economically and effectively. The more own energy resources the country has and effectively use them, the more she independent from other exporting countries. Often energy dependence of some countries could lead to international conflicts, wars, crisis.

Energy efficiency may become driving force at the going out of crisis, because the introduction of energy-saving decreases the cost of manufactured products. Thus, the national producers will be more competitive not only on the domestic market, but also will be able to conquer foreign markets. That will increase exports, GDP and as a result, the economic crisis will recede.

However, low indicators of energy efficiency of economy can cause significant losses, especially for countries with a significant share of energy-intensive production in creating the GDP.

Economy of Ukraine has inherited its features from the Soviet Union material-intensive and very energy-intensive manufacturing, extremely unbeneficial for its structure of energy consumption, which got complicated after independence. Our country not only lacks enough fuel and energy resources, resulting of imports of large volumes of resources. There is also the problem of outdated equipment in the most of energy-intensive industries. Now the structure of energy balance of Ukraine does not meet the structure of primary natural energy resources, which it owns.

Ukraine belongs to the countries that are not able to fully satisfy their needs for energy resources at the expense their own production, so we must import expensive resources.

Taking into consideration the production and consumption of primary energy resources and the level of coating needs PER by domestic production for the years 2012-2014 appear following conclusions (table 1).

Ukraine almost completely covers the amount of consumption of coal and peat by domestic production. However, the dynamics of production has an ambiguous character. In 2013, extraction increased by 407 toe and managed to cover 98.16% of the needs in this resource. And in 2014 there was a significant decline - in 8772 toe and the need for coal and peat by domestic production covered only by 89.64%. Reduce production arose because of temporary occupation of the eastern regions of the country, where the main deposits of coal were, the largest mines were closed, or working conditions get dangerous and are not at full capacity.

Table 1 - The level of coating needs PER by domestic production in Ukraine for the years 2012-2014

Data	Production, toe			Consumption, toe		
	2012	2013	2014	2012	2013	2014
Coal and peat	40256	40663	31891	42718	41427	35576
Crude oil and petroleum products	3414	3167	2817	11609	9906	10688
Natural gas	15403	16022	15022	43018	39444	33412
Total	59073	59852	49730	97345	90777	79676

Table 1 (continuation)

Data	The level of coating needs PER by domestic production,%			Growth,%	
	2012	2013	2014	2013-2012	2014-2013
Coal and peat	94,24	98,16	89,64	3,92	-8,51
Crude oil and petroleum products	29,41	31,97	26,36	2,56	-5,61
Natural gas	35,81	40,62	44,96	4,81	4,34
Total	60,68	65,93	62,42	5,25	-3,52

Note: compiled by the author based sources [4]

The dynamics of energy consumption for the 2012-2014 years has decreased. Because in this period the crisis began to develop, the occupation of the eastern regions enlarged, where the focus is not only production, but also the most energy-intensive industry that is a major consumer of coal - metallurgy.

Also Ukrainian Eastern region of oil and gas getting contains about 85% of natural gas reserves and nearly 61% of recoverable reserves of oil in Ukraine. The occupation of these territories spawned the energy crisis.

Ukraine has the reserves of crude oil, but we have a small number of oil refineries, leading to imports of petroleum products. During the 2012-2014 years oil production decreased, in particular due to loss of control of the Autonomous Republic of Crimea and the Eastern region.

Despite the fact that oil consumption has ambiguous character dynamics, it remained at a high level, so it is impossible to satisfy it by domestic production. In 2013, consumption decreased and own resources could cover 31.97% of oil consumption. In 2014, the satisfaction of needs of oil and oil products by domestic production decreased by 5.61% and amounted to 26.36%. This reduction is connected with increasing in consumption and a decreasing in production.

The efficiency of energy resources that are used in the economy and in the social sphere for all the years of independence Ukraine is very low and

deteriorating with the times. A significant deterioration of efficiency and capacity utilization of most facilities of power engineering and lack of investment in the renovation of causing significant costs of raw materials (coal, oil and gas, electricity), low efficiency of thermal power stations, significant energy losses in heat and electric networks. These circumstances, as well as large proportion of the energy consumption in energy-intensive industries and wasteful use of energy in all areas of economic complex of Ukraine and the people causing considerable energy gross of domestic product (table 2).

Table 2 - Changing in the power consumption of energy resources in Ukraine in 2012-2014 years

Data	Year		
	2012	2013	2014
Consumption of energy resources, toe	73107	69557	61460
GDP mln.USD	175781	183310	131805
The energy intensity of GDP, %	41,59	37,95	46,63

Note: compiled by the author based sources [4, 5]

The evolution of the GDP energy intensity had ambiguous character. In 2013 this indicator decreased by 3.64% comparing to the previous year when energy consumption was 0.38 kg of fuel (oil equivalent) per thousand dollars GDP. In 2014, energy consumption increased to 46.63% of GDP. The primary factor of influence on energy capacity - consumption during this period has downward trend. This indicator decreased because in this period we have ambiguous character of GDP of the country, including a significant decline in 2014 (to 51 505 million USD), which caused the wrong numbers of energy intensity.

Effective and efficient end-use in the social sphere is essential for the energy-saving (table 3).

FER consumption per capita decreases every year. Thus, in 2012 the per capita consumption is 1.60 kg of oil equivalent, and in 2014 - 1.35 tonnes of oil equivalent. Consumption is reduced due to a rise in price of imported fuel resources. The government began not only to understand the problems of energy efficiency in Ukraine, they began to move to action by stimulating the leading industries to reduce resource consumption,

particularly by renewal of the old and capacious assets to new energy-saving. Great attention was paid to the consumption of the population, explanatory work was carried out and sometimes forcibly people were forced to save energy.

Table 3 - Changing in the consumption of energy resources in Ukraine in 2012-2014 years

Data	Year		
	2012	2013	2014
Consumption of energy resources, toe	73107	69557	61460
Population, thousand people	45634	45553	45426
FER consumption per capita	1,60	1,53	1,35

Note: compiled by the author based sources [4, 6]

In order to improve energy efficiency in Ukraine on the way out of the economic crisis, we suggest the following measures:

- optimization of the country's energy balance;
- carrying out audit of the main energy consumers in order to implement energy efficiency measures;
  - encouraging the implementation of accounting devices using PER;
  - introduction to energy efficiency requirements for equipment, goods and services;
  - attracting significant and long-term investments for modernization, introducing energy saving technologies in the way of sustainable development, competitiveness and security of the state;
  - development programs implementing energy saving measures, including improved access to credit and the removal of legal restrictions on investment in energy efficiency for both the industry and to the public;
    - development of measures based on the experience of leading countries to stimulate energy management in energy-intensive industries;
    - approximate of energy management in Ukraine to the principles and EU legislation

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## **ENVIRONMENTAL PROBLEM AS THE COMPONENT OF IRRATIONAL FUNCTIONING OF THE GLOBAL ECONOMY**

***Olha Demianchuk, Kristina Monastyretska***

*The National University of Ostroh Academy, Ostroh, Ukraine*

One of the main factors that affect the preservation and development of society is a clean living environment on the planet. However, in the process of inefficient functioning of the global economy one of the first items in the list of global problems is environmental issue.

Conflicts concerning this matter took place even in the beginning of civilization, but today this range of problems is quite essential and urgent. Exploring the environmental problem in the global economy should take into account all the peculiarities of society at contemporary stage of development, the regularity of biospheric processes and their impact on the development of industrial activity, pressure on the environment [1].

The purpose of the study is to determine the aggravation of environmental problems due to the inefficient functioning of the global economy.

The environmental problem in the global economy is caused by several factors: