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## CURRENT ISSUES OF ENERGY EFFICIENCY MANAGEMENT OF THE ECONOMY OF UKRAINE

***Annotation.** The energy intensity of the gross domestic product of Ukraine for five years is analyzed. The main reasons for the high energy intensity of GDP and as a consequence of low energy efficiency of Ukraine's economy are given. The main directions of energy efficiency management of the Ukrainian economy are formulated: reduction of energy intensity of GDP by 20%; ensuring the widest possible diversification of ways and sources of supply of primary energy resources; liberalization of the markets of electric and thermal energy, coal and gas, transition to a new model of their functioning; integration of Ukraine's energy system with the continental European energy system ENTSO-E; complete reform of the energy and fuel pricing and tariff system; attracting foreign investment in the energy sector of Ukraine; reform of the coal industry and attraction of strategic investors, privatization of perspective and liquidation (conservation) of unprofitable coal mining enterprises; modernization of the fuel and energy complex infrastructure.*

***Key words:** gross domestic product, energy efficiency, management.*

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## АКТУАЛЬНІ ПИТАННЯ УПРАВЛІННЯ ЕНЕРГЕТИЧНОЮ ЕФЕКТИВНІСТЮ ЕКОНОМІКИ УКРАЇНИ

***Анотація.** Проаналізовано енергоємність валового внутрішнього продукту України за п'ять років. Наведено основні причини високої енергоємності ВВП та як наслідок низької енергоефективності економіки України. Сформульовано основні напрями управління енергоефективністю економіки України: зниження енергоємності ВВП на 20 %; забезпечення максимально широкої диверсифікації шляхів та джерел постачання первинних енергоресурсів; лібералізація ринків електричної і теплової енергії, вугілля та газу, перехід на нову модель їх функціонування; інтеграція енергосистеми України з континентальною європейською енергосистемою ENTSO-E; повна реформа системи ціно- та тарифоутворення на енергію та паливо; залучення іноземних інвестицій в енергетичний сектор України; реформа вугільної галузі та залучення стратегічних інвесторів, приватизація перспективних і ліквідація (консервація) збиткових вугледобувних підприємств; модернізація інфраструктури паливно-енергетичного комплексу.*

**Ключові слова:** валовий внутрішній продукт, енергетична ефективність, управління.

The main indicator of energy efficiency of any country is traditionally considered to be the energy intensity of gross domestic product (GDP). In Ukraine, there is a high energy intensity of output, which negatively affects the energy intensity of GDP. Therefore, one of the priority areas is to reduce the level of energy intensity of production. It is well known that the lower the energy intensity, the higher the energy efficiency. The course on energy efficiency indicates promising areas of innovation, expands business opportunities in the field of energy saving and energy efficiency, stimulates demand for energy-saving products and technologies.

According to the Energy Strategy of Ukraine for the period up to 2030, the energy intensity of GDP is the specific cost of primary energy per unit of GDP. This strategy states that the energy intensity of Ukraine's GDP should decrease to 0.41 kgf.e/USD [1]. The analysis of literature sources shows that in terms of energy intensity of GDP, our country is several times higher than in developed countries of Western and Eastern Europe [1; 2].

Analysis of energy intensity of gross domestic product of Ukraine for 2014-2018, which is given in table. 1. indicates that in 2018 compared to 2017 the level increased: GDP by 3.4%; final energy consumption by 2.5%; total primary energy supply by 4.1%; energy intensity of the total primary energy supply by 0.7%.

**Table 1**

**Analysis of energy intensity of gross domestic product of Ukraine for 2014-2018 yy.<sup>1</sup>**

| Indicators                                                                                | Years  |       |       |       |       | Deviation<br>2018 to<br>2017 ( %) |
|-------------------------------------------------------------------------------------------|--------|-------|-------|-------|-------|-----------------------------------|
|                                                                                           | 2014   | 2015  | 2016  | 2017  | 2018  |                                   |
| GDP in PKS 2011 billion international dollars                                             | 354,5  | 319,8 | 327,2 | 335,4 | 346,9 | 103,4                             |
| Final energy consumption, thousand toe                                                    | 61460  | 50831 | 51649 | 49911 | 51171 | 102,5                             |
| Energy intensity of final consumption, toe/thousand international dollars                 | 0,173  | 0,159 | 0,158 | 0,149 | 0,148 | 99,33                             |
| Total supply of primary energy, thousand toe                                              | 105683 | 90090 | 94383 | 89462 | 93165 | 104,1                             |
| Energy intensity of the total supply of primary energy toe/thousand international dollars | 0,298  | 0,282 | 0,288 | 0,267 | 0,269 | 100,7                             |

<sup>1</sup>2014-2018 without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea and the city of Sevastopol and part of the temporarily occupied territories in Donetsk and Luhansk regions.

Source: data of the State Statistics of Ukraine [3], own calculations

On the official website of «Naftogazbudinformatika» LLC in the article "Energy efficiency in Ukraine and EU countries" the main reasons for the high energy intensity of GDP and as a consequence of low energy efficiency of Ukraine's economy are formulated, in particular [4]: imperfect structure of industrial production, dominance of energy-intensive industries with a significant share of outdated energy-consuming technologies; depreciation of fixed assets of industrial enterprises and housing and communal services; high losses of energy resources; low level of introduction of energy efficient technologies and use of alternative energy sources, as well as insufficient measures to promote energy efficiency; excessive regulation of the market, which interferes with the normal operation of the energy

market; stimulating the introduction of innovative energy-saving technologies; imperfection of the regulatory and legislative framework.

In the XXI century, to solve the problem of increasing the efficient use of energy resources is possible only through the introduction of the latest energy efficient technologies and equipment that would meet the needs and requirements of today [2]. That is why the government of Ukraine has a task to ensure the transfer of the country's economy to a qualitatively new technical and technological level of development.

The main areas of energy efficiency management of Ukraine's economy should be:

- reduction of energy intensity of GDP by 20% by the end of 2020 through the introduction of mandatory commercial accounting of energy consumption (energy and fuel), the transition to the use of energy efficient technologies and equipment;
- ensuring the widest possible diversification of ways and sources of supply of primary energy resources, including oil, natural gas, coal, nuclear fuel, increasing domestic energy production, introduction of transparent competitive rules for the development and use of energy fields;
- liberalization of the markets of electric and thermal energy, coal and gas, transition to a new model of their functioning;
- integration of Ukraine's energy system with the continental European energy system ENTSO-E;
- reorganization of the public joint-stock company "National Joint-Stock Company" Naftogaz of Ukraine";
- complete reform of the system of pricing and tariffs for energy and fuel, in particular, revision of the mechanism for forming the balance of energy resources, rejection of cross-subsidization and state subsidies;
- attracting foreign investment in the energy sector of Ukraine, in particular in the modernization of the Unified Gas Transmission System of Ukraine, electricity generating capacities and power grids;
- reform of the coal industry and attraction of strategic investors, privatization of perspective and liquidation (conservation) of unprofitable coal mining enterprises;
- modernization of the fuel and energy complex infrastructure.

Thus, the scientific and practical significance of the results of the study is to identify the main areas of energy efficiency management of Ukraine's economy.

Further areas of research on this issue will be the optimization of the fuel and energy balance of Ukraine, as well as the study of solving the problem of energy efficiency on the example of the European Union.

#### ***Literature***

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