Oksana Makarchuk,
Candidate of Economic Sciences, Associate Professor, Associate Professor of the Department of Statistics and Economic Analysis,
National University of Life and Environmental Sciences of Ukraine

ANALYTICAL ASSESSMENT OF THE BIOENERGY POTENTIAL OF AGRICULTURAL ENTERPRISES

Bioenergy is one of the key components of sustainable development of the agricultural sector, as it allows not only to reduce dependence on fossil energy sources, but also to effectively use agricultural waste. Analytical assessment of the bioenergy potential of agricultural enterprises involves studying the quantitative and qualitative characteristics of available biomass, determining the possibilities of its conversion into energy, as well as the economic feasibility of implementing bioenergy technologies.

The main sources of biomass in the agricultural sector include: cereal straw, corn waste, sunflower husks, manure and other organic residues. The assessment of the potential

includes an analysis of factors such as the structure of the sown areas, the volume of livestock farming, the level of mechanization, the availability of logistical infrastructure and regional characteristics.

Modern bioenergy is the largest source of renewable energy in the world with a share of 55% and accounts for more than 6% of the global energy supply [2]. Renewable energy sources are energy produced using a resource that is rapidly renewed as a result of a continuous natural process [1].

On August 13, 2024, the Cabinet of Ministers of Ukraine approved the National Renewable Energy Action Plan for the period until 2030 and the action plan for its implementation. Thus, the share of renewable energy sources (RES) in gross final energy consumption in 2030 will be 27%, in particular: in heating and cooling systems – 33%; in electricity generation – 29%; in the transport sector – 17% [3].

To achieve these indicators, the this plan envisages the implementation of 38 measures structured according to the following objectives: (1) development of RES in electricity generation, where financing is envisaged to 12.6 billion USD, of which for the development of RES generation capacities based on the use of biomass and biogas: 1,681 million USD; (2) development of RES in heating and cooling systems within the financing 6.7 billion USD, of which for the development of heat generation capacities from RES: 3,419 million USD; (4) increasing the use of energy carriers obtained from RES in the transport sector, where financing is evaluated in size of 1.25 billion USD, of which for the use in the transport sector of bioethanol - 450 million USD, biodiesel - 19 million USD, biomethane - 2 million USD; (5) regulatory, legal and organizational support for the development of RES [3].

One of the promising areas is the production of biomethane. It can be used to directly replace natural gas in the production of heat and electricity. In the transport sector, biomethane can be a substitute for various types of motor fuels: compressed natural gas (CNG), gasoline, diesel, liquefied natural gas (LNG), liquefied petroleum gas (LPG). The total energy potential of biogas/biomethane production in Ukraine is estimated at 21.8 billion cubic meters per year (18.7 million tons of equivalent per year) [3].

Thus, the bioenergy industry in Ukraine has significant potential for development, occupying an important place in achieving the goals of the National Plan of Ukraine. This is due to the peculiarities of the climate, the prospects of the agricultural sector.

References

1. Biogene Kraftstoffe und Möglichkeiten und Grenzen. Fachkongress / BayWa AG, Mineralölwirtschaftsverband e.V., Kompetezzentrum für Nachwachsende Rohstoffe, C. A. R. M. E. N. e. V., Technologie- und Förderzentrum, Wissenschaftzentrum. Centrales Agrar–Rofstoff–Marketing- und Entwicklungs-Netzwerk e.V. 2005. 100 S.

2. Аналітичні дані Біоенергетичної асоціації України. URL: https://uabio.org/materials/page/2/

**НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ БІОРЕСУРСІВ
І ПРИРОДОКОРИСТУВАННЯ УКРАЇНИ
КАФЕДРА ЕКОНОМІЧНОЇ ТЕОРІЇ**

**МАТЕРІАЛИ ДОПОВІДЕЙ
МІЖНАРОДНОЇ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ**

РОЗВИТОК БІОЕНЕРГЕТИЧНОГО ПОТЕНЦІАЛУ В СІЛЬСЬКОМУ ГОСПОДАРСТВІ

**07 - 08 березня 2025 р.
м. Київ**

УДК 620.9:63

Розвиток біоенергетичного потенціалу в сільсь кому господарстві: матеріали доповідей Міжнародної науково-практичної конференції (м. Київ., 07-08 березня 2025 р.). – К.: Видавництво «Наукова столиця», 2025 – 172 с.

Відповідальний за випуск д. е. н., професор **М. П. Талавиря**

Відповідальність за достовірність матеріалів несуть автори.