

ANALYSIS OF THE POTENTIAL AND PROSPECTS OF THE DEVELOPMENT OF BIOMASS TECHNOLOGIES IN UKRAINE

The trust of domestic and international investors helped Ukraine get closer to changing the strategic balance of the energy market in the direction of renewable energy. Local and foreign investors from Austria, Belgium, Canada, China, Great Britain, Norway, Spain, Switzerland, Turkey and the United States, in particular, to attract funds for the Ukrainian renewable energy sector within the framework of a fair and stable regulatory framework. To date, our Government has positive experience of cooperation with the European Bank for Reconstruction and Development (EBRD), the US Foreign Private Investment Corporation and leading international financial institutions and banks from France, Denmark, Finland, Sweden, the Netherlands and other countries that provided long-term financing for renewable energy projects in Ukraine.

European experience shows that energy produced from biomass and other renewable sources plays an increasingly important role in the overall energy balance. According to the experts of the Ukrainian Bioenergy Association, the share of renewable energy in the EU has now reached 15%. Meanwhile, biomass accounts for 62% of the total renewable energy contribution. In European countries with the most developed agro-industrial complexes, such as Hungary, Poland, Finland, and the Baltic states, thanks to huge reserves of bioenergy raw materials, energy production from biomass reaches 95%. Taking into account the potential opportunities of Ukraine regarding the volumes of raw materials for the production of biomass, our country has every opportunity to take a leading position in the field of bioenergy.

The energy strategy of Ukraine until 2035 describes a positive and promising vision of the development of renewable energy. Experts predict that clean biomass, widely used around the world, will grow rapidly. Although currently the share of biomass in renewable energy sources is only about 2%, today it has a huge potential and is one of the most promising ecologically clean energy sources in Ukraine [1].

In the conditions of Ukraine's transition to the basis of a market economy, the issue of the use of biofuels becomes especially relevant, since Ukraine is an energy-deficit country that can meet its primary energy needs only at the expense of its own production. 45%; the fuel and energy balance of Ukraine is dominated by natural gas, which is 41%, which is significantly higher than the corresponding indicators of the USA, Great Britain and other countries. Reducing the consumption of natural gas, developing energy saving and solving urgent environmental problems are priorities. The country's energy security largely depends on the degree of energy diversification that meets its energy needs, therefore there is an urgent need to find and implement renewable energy sources (RES) and energy-saving technologies.

Among all renewable energy sources, biomass is the most promising alternative to natural gas and other fossil fuels in Ukraine. Biomass is a carbonaceous organic substance of plant and animal origin (wood, straw, plant residues of agricultural production, manure, organic part of solid household waste, sometimes peat). Solid biomass is mainly used for energy production, as well as liquid and gaseous fuels obtained from it - biogas, biodiesel, bioethanol.

However, insufficient attention is paid to the problem of effective use of the bioenergy potential of agribusiness, and the production of biofuel, its technological, ecological, organizational and economic, legislative aspects are becoming the focus of attention of many scientists and experts of various organizations. In this regard, it is necessary to develop indicators to assess the potential of alternative use of bioenergy from the point of view of food security, energy supply and maintenance of ecological balance. [2]. Biomass is an affordable local fuel that can be efficiently used for heating and electricity generation. The cost per unit of energy (GJ) of biomass as a fuel is significantly lower than the cost of natural gas.

The most common types of biomass in Ukraine include: straw, corn, sunflower; wood waste; crop production waste and their processing products; peat; fruit biomass. Total plant biomass has changed significantly in recent years, and increases in total crop yields have greatly increased the biomass available for energy use. The current total volume of grain production is 50 million tons, and the available energy of straw reaches 24 million tons. If the total collection increases to 80 million tons, this number will increase to 40 million tons, and if you consider that the mass of this plant is equivalent to 5 and 8 million tons of

conventional fuel, respectively, then the value of this biofuel is difficult to overestimate.

Thus, the energy that can be obtained when using such a quantity of fuel exceeds the capacity of all heating boilers operated in rural areas. The use of straw in such volumes would save from 4.5 to 14 billion cubic meters. natural gas.

Despite the huge potential of biogas for electricity production in Ukraine, the market is not yet sufficiently developed. Currently, there are large biogas plants producing electricity in Ukraine with a total installed capacity of 85 MW. [3].

In Ukraine, there are more smaller biogas plants belonging to small and medium-sized livestock farms and about 10 smaller biogas plants related to the production of biogas from municipal waste in different regions. Small biogas plants in Ukraine, as well as in other countries, quickly produce heat for the farm where they are installed.

Conclusion. Based on conservative considerations, there is potential for about 5,000 biogas plants in the agricultural sector alone in Ukraine with an average installed capacity of 3 MW per plant. These installations can provide 5.7% of Ukraine's energy consumption. Technically, Ukraine has the potential to produce only 10% of the consumed energy with the help of biogas. The Ukrainian government is working hard to attract foreign investment in biogas production. The huge potential of biogas production in Ukraine has attracted the interest of international biogas design and construction companies and investors.

References

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