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The paper examines the structure of the global energy market. It notes that primary energy consumption worldwide has increased by almost 14 %. As of 2021, the largest consumers of primary energy were the Asia-Pacific region, North America and Europe. It is noted that fossil fuels (coal, oil, gas) form the basis of the global energy market structure. It is emphasised that coal has been and remains the basis of the industrial revolution in the world, despite the rapid growth of alternative energy. Forecasts show a slight increase in global coal production and a decrease in oil and gas production by 2050.

Attention is paid to the issue of energy production and consumption in Ukraine, which is linked to the need to implement the country's sustainable development goals in an environmentally and economically acceptable manner. The structure of fossil fuel reserves in Ukraine is presented, and it is noted that coal resources significantly outweigh all other types of fossil fuels (oil, gas). It is analysed that with projected coal reserves of about 117 billion tonnes, off-balance (substandard) reserves account for almost 59 billion tonnes. Therefore, the article proposes to develop these substandard coal deposits by underground gasification. This method of ecological conversion will allow significant volumes of substandard fuel and energy resources to be brought into the country's energy circulation. This will minimise damage to the environment and contribute to sustainable economic development.

The principle of solid fuel gasification is considered and it is established that the best production indicators are underground coal gasification (UCG) processes using water-oxygen and water (water vapour) reagents. The use of cheap liquid reagents, such as water (vapour), is more promising for UCG. The advantages, disadvantages and improvements of the UCG process technology are noted. Attention is focused on the possibility of further use of target gas, which mainly consists of CO and H₂, for the production of synthetic liquid fuel (SLF) using the Fischer-Tropsch method.

Keywords: global energy, energy of Ukraine, coal, substandard solid fuels, coal gasification, underground gasification, target gas.

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