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## **TASKS AND MAIN TYPES OF EQUIPMENT MODERNIZATION**

During the operation of power plant equipment, its moral and physical aging occurs. This results in additional losses, deterioration of the technical and economic indicators of the equipment, and the question of its further operation arises.

The National Energy Program of Ukraine until 2035 provides for annual investment in the reconstruction and modernization of existing energy facilities, mainly thermal power plants, in the amount of about \$1 billion. The difficult economic and financial situation of the energy sector does not allow for financing from its own savings or budget funds.

One of the key problems of energy development is attracting additional resources, both external and internal. Taking this into account, the Ministry of Energy is pursuing a consistent policy of attracting funds from foreign investors and creditors for the rehabilitation of generating sources of electricity. The most accessible creditors turned out to be the World Bank and the European Bank for Reconstruction and Development, whose policy is aimed at developing infrastructure in countries with transition economies.

Modernization of production is carried out with the purpose of improving the characteristics of power equipment that has not yet exhausted its technical resource, but does not meet modern requirements in terms of technical and economic indicators. Modernization can take place during major repairs of power units, including reconstruction of units and elements or their replacement.

The main objectives of the modernization of power units are:

- improvement of technical and economic indicators (efficiency, specific consumption, fuel and heat);
- reduction of negative impact on the environment in accordance with international standards;
- increased reliability;
- increase in technical resource.

Each of the listed tasks is solved in compliance with the requirements formulated in the following tasks. For example: the improvement of technical and economic indicators should occur in compliance with the requirements of ecology, reliability, and durability.

A complex task of modernization can be a simultaneous solution of all four tasks. However, it is known that reducing the negative impact on the environment leads to a decrease in emissions from production at thermal power plants. Increasing reliability leads to increased efficiency and reduced emissions.

Equipment modernization requires capital investments.