ENERGY PRODUCTION AT THERMAL POWER STATIONS AND INDUSTRIAL THERMAL POWER PLANTS

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One of the most advanced types of energy is electricity, the wide use of which is due to the following possibilities: production in large quantities near deposits and water sources; transportation over long distances with relatively small losses; transformation into other types of energy: mechanical, chemical, thermal, light; relative absence of environmental pollution; application of fundamentally new progressive technological processes with a high degree of automation. No less common is thermal energy, which is widely used in modern industries and in everyday life in the form of steam energy, hot water, fuel combustion products. Electric and thermal energy is produced at: thermal power plants on organic fuel using steam turbines, combustion products, and their combinations as the working medium; hydraulic power plants that use the energy of the falling flow of water, flow, inflow nuclear power plants that use the energy of nuclear fission. Thermal power plants can be divided into condensing power plants that produce only electricity and thermal power plants - with combined production of electricity and heat. Modern thermal power stations have mainly a block structure, that is, they consist of separate power units. The composition of each of them includes the main units - turbine and boiler and auxiliary equipment directly related to them. The turbine together with the boiler, which feeds it with steam, forms a monoblock. The main indicator of the energy efficiency of a power plant is the coefficient of the useful effect of the release of electric energy, which is called the absolute electrical coefficient of the useful effect of the power plant. Industrial thermal power plants, like condensing power plants, produce electricity. In addition, thermal energy in the form of steam and hot water for technological needs of production and hot water for communal consumption are released to the consumer. With such combined production of thermal and electrical energy, more heat of the steam generated in the turbines is transferred to the thermal network. This leads to a reduction in fuel consumption by 25-30% compared to the separate production of electricity at condensing electric stations and heat in district boiler houses.