

## PROBLEMS OF USE AND CONSERVATION OF ENERGY RESOURCES IN HEAT POWER ENGINEERING

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The high growth rates of natural resource consumption in recent years and the progressive pollution of the environment have given rise to various theories regarding the future provision of human beings on Earth. The most common theory in the West is the depletion of natural resources and the onset of natural hunger. Therefore, at present, humanity is forced to rationally use energy that comes from non-renewable minerals[1].

Unfortunately, today, humanity cannot completely abandon the use of thermal power plants and thermal power plants, and switch to renewable energy sources that are more environmentally friendly. So it is necessary to modernize power plants. The main disadvantages of thermal power plants include low efficiency, environmental pollution. Coal and fly ash contain significant amounts of radioactive impurities ( $^{226}\text{Ra}$ ,  $^{228}\text{Ra}$ ). The annual emission into the atmosphere in the area of the TPP with a capacity of 1 GW leads to accumulation on the soil of radioactivity, 10-20 times higher than the radioactivity of annual emissions of NPPs of the same capacity. TPP on coal producing 1 GW of electricity consumes 3 million tonnes of coal annually, emitting 7 million tonnes of carbon dioxide, 120,000 tonnes sulfur dioxide, 20000 tonnes of nitrogen oxides and 750,000 tonnes of ash. Therefore, it is necessary to modernize power plants by introducing the latest technologies, replacing outdated equipment with more modern ones with greater efficiency[2].

One method of minimizing heat loss is to install modular boiler rooms directly near the site of heat energy use to minimize the length of the heat lines. Such boiler rooms can run both on gas and on solid fuel, and provide heat to multi-storey buildings, hospitals, schools. The main task of thermal insulation materials for pipelines is to exclude heat exchange between the equipment or product being transported (agent) and the environment. The use of these materials is dictated, above all, by the requirements of economy and energy conservation.

Also, modern thermal power plants need to introduce technology to reduce the temperature of flue gas at the outlet of the boiler through the use of heat utilizers, for example, to heat water (use of condensing boilers). The introduction of all these technologies will have a positive effect on both the economy and the environment.

### References

1. Baskakov, A. Heat engineering: a textbook for high schools / A. Baskakov [and others]; ed. A. Baskakov. - 2nd ed., Remaking. - M.: Energoizdat, 1991. - 200 p.
2. Litvin, A. Technical thermodynamics: a textbook for universities / A. Litvin. - M.: Gosenergoizdat, 1963. - 180 p.