

УДК 536.7

ПУТИ ОПТИМИЗАЦИИ РАБОТЫ ТЭЦ НА ПРИМЕРЕ
ЭНЕРГОСИСТЕМЫ ГОРОДА МОГИЛЕВА

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Most people have never thought how electrical power appears in their homes. Electrical power generation is a complex high-tech process.

A thermal power plant is a kind of thermal installation which not only generates electricity but is a source of thermal energy in the form of hot water for hot water supply, residential and industrial premises heating. A thermal power plant main component are: boiler heating water to steam state, steam turbine, generator, switch gear, cooling tower.

A power system is a set of power plants, electric and thermal grids connected between one another for transformation, transmission and distribution of electrical and thermal power. This eliminates faults during power supply. The Republic of Belarus possesses 6 systems of this kind as well as regions all of which are included in the united power system of Belarus set in the BSSR in 1962.

Today the Mogilev power system is included in the Belarussian power system which is integrated within the power system of the Russian Federation. This means that in case of a fault at a power transmission line or at a plant itself, the neighboring plants assume the load and this way they compensate a falling out link of the system.

The total output of Mogilev region power sources equals around 570 MW. In the city of Mogilev operate 3 thermal power plants: TPP-1, 2 and 3.

Optimization of Mogilev Thermal Power Plant-1 involves reconstruction using up-to-date steam and gas technologies – the fact that will result in increasing output, lowering fuel costs and rising efficiency which is the basic purpose of power plant modernization.

Sequence of modernization:

- 1) dismantling of old heating equipment, installation of gas turbine plants. Result: lower steam costs, efficiency increase;
- 2) expansion of water heating complex. Result: rising heat power output;
- 3) changing worn out turbines for new ones employing new technologies. Result: increase of the thermal power plant output and efficiency;
- 4) modernization of electrical equipment, switch gear construction. Result: lower power losses while distribution.

Conclusion: optimization of Mogilev Thermal Power Plant One upon the reconstruction of old equipment will increase the power output from 21 to 49 MW.