The article deals with two main tasks related to the problem of creating new energy-efficient technologies and equipment for obtaining high-quality seeds of cereals. The presented technology of drying seeds of cereals is based on the implementation of the principles of obtaining heat from alternative energy sources, as well as the generation of heat energy through the utilization of heat from waste drying agent in multi-zone drying plants.

When studying heat losses for drying in the existing types of grain dryers, it turned out that they all consume more heat than it is required. They implement the principle of high-temperature drying of grain with subsequent cooling, which justifies itself when drying grain for food purposes, but it cannot be realized with heat treatment of grain seeds.

The thermal balance of the mine grain dryer is presented, and heat losses in the process of drying are analyzed to work out measures to reduce specific heat losses for the process.

The comparison of energy efficient drying technology according to heat losses indicates a large gap in heat losses between the existing technologies. One of the directions of energy-efficient drying of grain crops is a heat pump that can use various sources of energy in a complex way, as well as the possibility of designing schemes for drying and cooling at different temperatures in various zones of grain dryers.

The scheme of a grain dryer with a heat generator from a heat pump indicates an increase in the intensity of low temperature drying of grain due to the decrease of air humidity. Experimental studies of the kinetics of drying rapeseeds in a mine heat pump plant showed an increase in the intensity of the process by 15% compared with the drying on electric heaters.

In a dryer with a heat pump of periodic action, specific losses of drying equal 3700 kJ/kg of evaporated moisture, which meets the requirements of heat consumption during seeds drying.

The implementation of low-temperature drying modes allows maintaining high quality of the seed material and indicates the expediency of using heat pumps.

Keywords: drying, seeds, grain dryers, energy efficiency, kinetics, heat pump, quality.