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PJSC «UKRZALIZNYTSIA»
Regional branch «Donetsk railway»

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and thus obtained video footage can also be used during the learning process to improve the quality perception of the material students.

Also received the ways data would be useful for optimizing routes and special vehicles safety of their movement; the author examines these issues in [2-3].

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WAYS OF ENERGY SAVING IN RAILWAY TRANSPORT

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Energy saving is one of the most important tasks of the 21st century. The place of our society among the economically developed countries and the standard of living of citizens depend on the results of solving this problem. The energy resources required for domestic development can be obtained not only by increasing the extraction of raw materials, but also, at lower costs, by saving energy directly in the energy consumption centers, in this case, in the production units of the railway transport.

The efficiency of the use of fuel resources is still quite low. To date, the specific fuel and energy consumption in equipment and processes on average twice exceeds those for the industrialized countries of Western Europe and the United States. Improving the energy efficiency of the national economy is one of the main ways to ensure national security, filling the

budget, increasing the competitiveness of domestic products, and addressing social issues.

The current state of use of energy resources does not meet modern requirements. The negative impact on the energy saving process is primarily played by the availability of outdated technologies and equipment in operation, as well as the lack of sufficient control over the consumption of energy resources and, of course, the lack of sufficient financing for energy-efficient projects.

One of the ways to increase the overall efficiency in the field of fuel use is the use of alternative energy sources, in particular heat pumps. The use of heat pumps makes it possible to convert, for example, electrical energy into thermal energy, with a coefficient of 2.5-3.0. This determines the efficiency of using heat pump plants. Despite significant initial costs, the payback period of such projects is within 5 years, which makes it possible to speak about the cost-effectiveness of the introduction of such equipment at railway enterprises.

Railway transport is one of the resource and energy consumed by the economy. First of all, it concerns electricity and diesel fuel which is used in the traction of trains. In 2016, 4.6 billion kWh of electric power (83% for traction of trains), 302.8 thousand tons of diesel fuel (87% for traction of trains), 90.0 million cubic meters of natural gas were used by rail, 32.2 thousand tons of coal, 1.47 thousand tons of fuel oil and 4.58 tons of gasoline.

Regardless of the annual reduction in energy costs, railway transport increasingly pays attention to their effective use. Since 2017 in the structure of the Ukrainian Railways Ukrzaliznytsya, the Energy Management Department has started its activity, which should consolidate the activity of all regional branches in the field of energy saving, develop a unified strategy in this direction, tighten control over the use of fuel resources and improve the normalization process, At the end of the year, reducing the energy intensity of the transportation process.

For this purpose (reduction of energy intensity), the "Energy Saving Program" for PJSC "Ukrzalyznitsa" was designed and developed, the main areas of which are: improvement of the technology of the transportation process; Rational use of the operating park; Modernization of external lighting of railway infrastructure facilities; Reconstruction and renewal of the thermal facilities of production units.

Planned capital investments for energy saving measures for 2017 are 106.5 million UAH, which should allow 11.4 thousand tonnes of energy saving in energy resources and reduce the energy intensity of the railway sector by at least 1.0%.