

Energy saving

V. G. KUZNEZHOV, K. A. KALASHNIKOV. DETERMINATION OF THE OPTIMUM LOCATION OF TRAINS BETWEEN TRACTION SUBSTATIONS BASED ON THE MINIMUM OF POWER LOSS IN THE TRACTION NETWORK.....2

The article discusses the influence of the location of trains on electricity losses in the contact line in view of the range of the eventual distance values between trains. The optimum distance between trains minimizing the power loss in the contact line was suggested.

A. N. GANZHA, E. G. BRATUTA, O. V. KRUGLYAKOVA, V. N. PODKOPAY, V. V. CHUBAROVA. EFFECTIVENESS ANALYSIS OF THE HEAT PUMP SYSTEM OF HEAT RECOVERY FROM THE COMPRESSOR FACILITY IN VIEW OF THE INTERACTION OF THE EQUIPMENT PERFORMANCE CHARACTERISTICS.....14

The mathematical models, methods and algorithms to obtain the dependence of the efficiency of the heat recovery and delivery system on the air cooling device of the compressor unit were developed. The methods and tools of the effectiveness analysis based on the thermal and hydraulic calculations take into consideration the actual condition and performance characteristics of the equipment and individual elements of the system. Fig.: 4. Ref.: 6 titles.

V. A. MALYARENKO, I. E. SHCHERBAK, I. D. KOLOTILO. ELECTRIC POWER AS A SOURCE OF FUEL DIVERSIFICATION IN HOT WATER SUPPLY SYSTEMS OF HOUSING AND UTILITIES.....19

The article deals with the feasibility of the transition from centralized hot water supply to electric water heating systems, and use of operating electrical networks for the above purpose. The main advantages of this transition are shown herein.

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Ju. I. NEFEDOV, S. S. BRAGIN. HYDROPERCUSSION CAVITATION HEAT GENERATOR AND WATER LIFTING DEVICE.....24

The article describes the version of a hydraulic ram functioning as a cavitation heat generator and water lifting device. To that end, in the hydram drive pipe the water flow deceleration is provided at the inlet and at the end of the pipe. A short-time water deceleration at the pipe inlet enables to create a higher speed of the boost flow sufficient to form a large volume vapour cavity inside the pipe. The water hammer at the end of the pipe produces a high pressure reflected shock wave destroying cavitation formations. The water being heated in so doing is supplied in the air chamber, and then, under high pressure is lifted to the consumer. The high speed of the boost flow makes it possible to reduce approximately 10 times the duration of one working cycle of the hydram, which results in increasing its capacity and delivering a high heat output.

K.V. USCHAPOVSKY, O. L. SHPAK. EFFECTIVENESS OF STRATEGIC DIRECTIONS IN ENERGY INDUSTRY.....30

This article deals with the following issues: analysis of the business process for selling the volume of electric energy output by the production area of OJSC Power Supply Company "Khmelnitskoblenergo" by KPI (Key Performance Indicators); analysis of problem areas of the above business process, and analysis of the problems arising during its implementation (except for lack of regulations, non-conformity to ISO quality standard 9001:2000 and EFQM model, etc.)

B. N. MESHKOV, V. A. CHERNYSHOV. SELF-IDENTIFICATION OF A GROUND FAULT THROUGH TELEGRAPHY.....38

The article is dedicated to the problem of locating the origin of the single-phase ground fault in the distribution networks with an insulated neutral. The latest developments and solution approaches to the problem were reviewed. The complexity of the large-scale implementation of the developments is identified, and the alternative to resolve it is suggested herein.

Scientific and technical progress and efficiency of production

T. P. PAVLENKO, M.N. TOKAR. INVESTIGATION OF AMORPHOUS ALLOYS IN CURRENT TRANSFORMERS OF SOLID-STATE TRIPPING DEVICES FOR CIRCUIT BREAKERS.....42

The article is concerned with the preliminary studies and comparative analysis of the current transformer cores of amorphous alloy and electrical steel operating within the ranges of low and maximum calibrated current ratios in the solid-state tripping device units for circuit breakers.

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This article describes a mathematical model for calculating the quantitative characteristics of the combustion of a pulverized coke particle and influence of water vapour within the furnace volume on the combustion process. To test the proposed model there are calculated the dynamics and total time τ_c for combustion of the coke particles of the original size from 50-300 microns under different oxygen content in the combustion chamber. The close agreement between the calculated τ_c and experimental data is observed. Further, the heating value of coke combustible matter obtained by calculation is in good agreement with the table value. It is found that the increase in water vapour content within the furnace volume has an insignificant effect on the dynamics of combustion of coke particles, but reduces their temperature and heating value. The developed model can be used in coal-fired heat power industry for analysing the combustion peculiarities of pulverized coal fuel depending on the conditions of the burning process.

M. N. ORFANOVA, M. M. ORFANOVA, V. I. PUSTOGOV. APPLICATION POTENTIAL OF THE MECHANICAL ACTIVATION METHOD TO RECYCLE ASHES FROM TPP AS FILLERS FOR CONSTRUCTION MATERIALS.....58

Bottom ash and slag waste from TPP are stored in ash dumps that occupy large areas of fertile lands. One of the approaches of its use is to produce binding fillers in the construction material industry. It is shown the efficiency of using the mechanical activation method in resolving this problem. The technology of preparing a cement mixture with the addition of up to 30% of mechanically activated ash in the mixture without reducing the characteristics of the obtained set cement is given herein.

VLADIMIR GUREVICH. THE ISSUES OF PHILOSOPHY IN RELAY PROTECTION.....63

Philosophy beginning with the ancient Greeks is literally “a love of wisdom” and deals with the most general issues of reality. The Wikipedia dictionary determines philosophy as a science, which studies everything. Logic and critical analysis are the pillars of philosophic thinking. ‘So, why don’t we use these attributes of philosophy to analyze the situation around relay protection,’ – Dr. Vladimir Gurevich raises this question, and it appears that such analysis may result in counterintuitive findings.

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