

Union "Science and Energetics"

ENERGY

SCIENTIFIC AND TECHNICAL JOURNAL

4(88)/2018

Tbilisi

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DETERMINATION OF METHODS AND ELIMINATION OF QUALITATIVE CRITERIA OF DAMAGE TO THE GAS DISTRIBUTION NETWORK.

D.Namgaladze, L.Shatakishvili, G.Gagua. "Energy". №4(88). 2018. Tbilisi. p. 5-10. geo. sum geo. engl. rus.

Analysis of damage to the gas distribution network shows that 50% of valves failures revealed loss of leak tightness. The study uses seven statistical tools to monitor consumption. In particular, a practical methodology for the quality of the consumption system was developed, which contains the following methods: a checklist, a Pareto chart, a cause and effect Ishikawa chart, a histogram, scatter charts, a control chart and an expert analysis. The construction of Pareto diagram and ranking of failures shows that these failures are located on the same branch, which corresponds to errors at the design stage. These failures are considered in the first place to eliminate events due to reduction of the severity and the prevention and consequences.

Ill. 5, bibl. 13.

GEOHERMAL ENERGY AND ITS USE.

L.Papava, M.Razmadze, P.Elizarashvili. "Energy". №3(87). 2018. Tbilisi. p.11-15. geo. sum geo. engl. rus.

The use of "hot water" potential in the depths of the earth has begun far earlier than electrical energy or conventional fuels. Today, while humans are trying to avoid the ecological crisis of the world, the adoption of "green energy sources" has become urgent.

Geothermal energy - is kind of energy from the natural heat of the earth. Earth temperature is variable and geothermal energy is used in a wide range of temperatures.

The article describes the importance of this renewable and alternative source of energy and the major benefit that will be followed by its full implementation. Georgia's geothermal potential and area of its use are also discussed in the paper.

Ill. 3, bibl. 5.

INTENSIFICATION OF HEAT TRANSFER FROM THE HEATING SURFACE TO THE SURROUNDING FLUID.

L.Papava, L.Gugulashvili, M.Razmadze, E.Sadagashvili, G.Gugulashvili. "Energy". №4(88). 2018. Tbilisi. p.16-20. geo. sum geo. engl. rus.

The devices for heating liquids are considered and it is shown that the increase in their power and productivity is impeded by the difficulty of increasing the efficiency of heat transfer between the heating surface of the electric heaters and the liquid. The reason for this is the formation of a vapor film on the surface of the electric heater with increasing its power. The steam film formed on the surface of the heater prevents the transfer of heat from the heater to the liquid and, in addition, reducing heat removal, leads to overheating of the electric heater and its failure. A new design of a liquid heater is provided in which a heating element is provided with a means for destroying a vapor film which, by using the ascending convective flows of a heated liquid, mechanically removes the vapor film and supplies a cold liquid to the surface.

Ill. 1, bibl. 4.

COMPARISON OF SYSTEMS OF SERIES AND INDEPENDENT EXCITATION OF TRACTION DC MOTORS

T.Natenadze, A.Zerekidze. "Energy". №4(88). 2018. Tbilisi. p.21-26. geo. sum geo. engl. rus.

The article discusses the systems of series and independent excitation of traction DC motors. Preference is given to a system where power is regulated smoothly from static converters, as well as a system where the distribution of loads between the traction motors is carried out by individually controlling the excitation current of the traction motors.

Ill. 1, bibl. 11.

ANALYSIS OF Z-MODELS, ON THE EXAMPLE OF AN ENERGY DISTRIBUTION

COMPANY. N.Avagumashvili. "Energy". №4(88). 2018. Tbilisi. p. 27-32. geo. sum geo. engl. rus.

Z-models of an energy distribution company financial stability and probability of bankruptcy forecasting are analyzed. The substantive part of the available models is shown in the work, as well.

In this article, all integral Z-models presents linearly regressing model of four financial coefficients. We have used: Altman Z-score, Taffler Z-score, and Gordon L.W. Springate Z-scores. Calculation results are based on the comparative analysis.

In the presented article three main tasks have to be considered by the financial analyst: assessment of the financial condition of the enterprise on the basis of factual data, through calculation of Z-models; forecast of the financial stability and bankruptcy probability according to calculated results. Afterwards, the analyst has to conduct a comparative analysis on the basis of Z-model results and can compose a plan for improvement of the financial condition of organization.

Tabl. 6, bibl. 9.

ANALYSIS OF OVERVOLTAGES IN 35 KV VOLTAGE NETWORK OF CAUSED IN ISOLATED NEUTRAL GRID FROM ONE-PHASE GROUNDING.

T.Apriashvili. "Energy". №4(88). 2018. Tbilisi. p. 33-39. geo. sum geo. engl. rus.

This article shows rules, about one-phase grounding in isolated neutral systems, which is valid in Georgia. In the article is given example, In particular one-phase grounding, on outgoing 35 kV power transmission lines from substation "Khashuri 35", of which neutral is isolated. Thereis also example of overvoltages of isolated neutral grid from one-phase grounding.

Ill. 6, bibl. 5.

IMPROVING ENERGY CHARACTERISTICS OF HYDROGENERATORS DY REDUCING POLE LOSSES.

Y.Bijamov. "Energy". №4(88). 2018. Tbilisi. p. 40-45. rus. sum geo. engl. rus.

Energy characteristics can be improved and the efficiency of operated hydrogenerators increased by certain structural changes in generator pole tips reducing additional energy losses in rotors.

The procedure of assessment of energy losses in pole tips before and after the reconstruction of rotors is considered.

The paper gives examples of practical energy saving measures reducing additional losses in the poles of hydrogenerators.

Tabl. 3, bibl. 7.

IMPROVEMENT OF THE METHODS FOR DETERMINATION OF SERVICEABILITY OF THE EXPLOSIVES.

S. Khomeriki, M. Losaberidze, D. Khomeriki. "Energy". №4(88). 2018. Tbilisi. p.46-50. geo. sum geo. engl. rus.

The modern methods for estimation of serviceability of coarse – dispersed explosive are considered. It was established that for conservation of rock natural structure in mined blocks the explosives, characterized by high detonation velocity, must be used to exclude the increase of existing cracks by short-time explosion pulse at the expense of inertia of rock massif. Action of explosion pulse by reduced time is possible only for brizant explosives, characterized by high detonation velocity.

Ill. 1, tabl. 1, bibl. 7.

OPERATION OF EMERGENCY AUTOMATICS IN CASE OF INTEGRATION OF WIND ENERGY IN GEORGIAN ELECTRICAL SYSTEM.

I.Vakhtangadze, G.Vakhtangadze, S.Nachkebia, M.Rukhvadze. "Energy". №4(88). 2018. Tbilisi. p. 51-54. geo. sum geo. engl. rus.

Besides positive effect, integration of wind and solar energy can cause specific difficulties in power system. Due to specifications of these types of generators, they practically do not change the constant inertia of the system. This has the negative influence on characteristics of transient

process. Avoiding above-mentioned is possible either by increase of constant inertia of the system or by automatically adjusting the power transmitted by the HVDC station.

Ill. 4.

PECULIARITIES OF CHANGING INELASTIC CHARACTERISTICS OF P-TYPE $\text{Si}_{0,96}\text{Ge}_{0,04}$ ALLOYS, RADIATED BY X-RAY PHOTONS.

I.Kurashvili, T.Kimeridze, I.Tabatadze, D.Mkheidze, G.Darsavelidze. "Energy". №4(88). 2018. Tbilisi. p. 55-62. geo. sum geo. engl. rus.

Present work deals with the investigation of the amplitude dependences of internal friction and dynamic shear modulus of p-type coarse-grained $\text{Si}_{0,96}\text{Ge}_{0,04}$ alloy, grown by Czochralski method, radiated by X-rays with a fluencies of $5 \cdot 10^{15} \text{ cm}^{-2}$. It is shown, that radiation exposure by X-rays modifies the subsystem of the structural defects, formed in a crystal growth process. After annealing at $200\text{-}400^\circ\text{C}$ temperatures there is a tendency for dynamic mechanical hardening due to the enlargement of radiation defects in the atmospheres around the dislocations and conditions for their blocking.

Ill. 3, tabl. 1, bibl. 13.

PROSPECTS FOR IMPROVING THE LAND CADASTER IN THE MUNICIPALITY OF TETRITSKARO.

Papachashvili T., Bliadze E. "Energy". №4(88). 2018. Tbilisi. p. 63-69. geo. sum geo. engl. rus.

Land, as an economic asset, has the great importance in the resource potential of any country. The economic stability of the state and the welfare of society are based on the effective management of the land and its optimal use. Available documentary information of land plots at the state's disposal is the necessary precondition to manage and monitor the land, which largely determines the ensuring economic growth, social justice and environmental protection. The article is devoted to the analysis of the current state of the land cadaster in the municipality of Tetritskaro. Analytical information about land parcels, their quantitative or qualitative characteristics in the mentioned municipality is given in the work. The advantages of modern information technologies in cadastral production are highlighted. Based on the results of the survey, there are developed some recommendations to improve theoretical and practical aspects of cadastral production in the municipality of Tetritskaro.

Ill. 6, tabl. 2, bibl. 7.

IMPLEMENTATION OF ELECTRONIC APOSTILLE IN GEORGIA.

G.Natchkepia, D.Gabunia. "Energy". №4(88). 2018. Tbilisi. p. 70-74. geo. sum geo. engl. rus.

The article refers to introduction of the electronic Apostille, namely to feasibility of certification of the electronic documents with eApostille by the Legal Entity of Public Law – Public Service Development Agency of the Ministry of Justice of Georgia throughout Georgia. The authors believe that based on the current reality it is possible to find the innovative ways, methodological, legislative and substantiated modelling of which will make it possible to introduce new services in the country, which, on its part, will make it possible to create comfortable and quality product. Possible solutions related to adoption of the technology are analyzed as well. The article offers suggestions for improving of the given process, as a result and by means of which the relationships of the State with the society will become more efficient.

Bibl. 6.

LEVELS OF ADOPTION OF KNOWLEDGE AND QUANTIFICATION OF THE VOLUME OF ADOPTED STUDYING MATERIAL

J.Nikuradze, V.Kvintradze, V.Meladze, G.Chikhladze, M.Zhghenti. "Energy". №4(88). 2018. Tbilisi. p. 75-79. geo. sum geo. engl. rus.

The work deals with the volume of adopted studying material at different levels of adoption of knowledge. The special attention has been paid to three levels: imagination, perception, reproduction. It was revealed that adoption of knowledge takes place at different levels: imagination – the first form of adoption of knowledge; at the level of perception among the variety of similar notions a student is able to correctly reveal and percept the necessary notion; while the level of reproduction is meant to be the highest level of adoption of studying material. Interrelation

between these levels has been stated. Besides that at different levels of adoption of knowledge the productivity of studies and conditions for study has been measured.

Bibl. 4.

FUZZY LOGIC AND ITS APPLICATION IN RELAY PROTECTION.

K.Tsereteli, M.Kvrivishvili, L.Gobadze. "Energy". №4(88). 2018. Tbilisi. p. 80-85. geo. sum geo. engl. rus.

Modern relay protection is in the process of significant change and perfection. Digital ideologies and schemes are used in the design. Serious changes not only in the performance but also in the algorithms of protection functioning. Considerable emphasis is placed on spectral methods of processing of fast processes, where "Wavelet transform" is used. Serious progress is planned in the decisive (logical) part of the protection where the methods of Neural networks (Neural Network) and fuzzy logic (Fuzzy logic) are developed.

The article describes the development and methodology of Fuzzy Logic and its applicability in building the future of relay protection in a specific example, simulation in Matlab computing software.

Ill. 8, bibl. 6.

MODIFIED CONCRETES FOR REPAIR AND RECONSTRUCTION WORKS OF SEAPORT HYDROTECHNICAL PILE'S STRUCTURES.

Iu. Rubtsova. "Energy". №4(88). 2018. Tbilisi. p. 86-93. rus. sum geo. engl. rus.

The article analyzes the perspective methods for analyzing the technical condition and repair of pile racks of seaport hydraulic structures. A model of damageability of structures has been developed, which allows identifying the most vulnerable structural elements so requiring the use of modified concrete with optimized compositions. The results of innovative research of the optimization and formation of compositions of modified concrete with enhanced characteristics for the recovery of defects in various areas of the reinforced concrete structural elements are presented.

Tabl. 6, bibl. 14.