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C O N T E N T S

DEVELOPMENT OF MATHEMATICAL ALGORITHM FOR THE MANAGEMENT AND DATA TRANSFER OF THE ELECTRIC POWER CONSUMED BY JSC TELASI SUBSCRIBERS.

R. Arveladze, M. Gverdtsiteli. **"Energy". №4(84). 2017. Tbilisi. p. 5-10. rus. sum geo. engl. rus.**

The developed mathematic model for the conversion of the impulsive signal of the electric power consumption belongs to the instrumental-system complex equipped with the software allowing to monitor electric power consumption, data transfer and management of the power supply to the subscribers. The complex can easily be integrated into the recording units being used.

MATHEMATICAL MODEL OF A DIRECT-CURRENT DC FAN MOTOR.

D. Kokhreidze, G. Kharshiladze. **"Energy". №4(84). 2017. Tbilisi. p. 11-15. geo. sum geo. engl. rus.**

In the article it is reviewed dynamic regimes in a DC-motor. The engine is based on an induction motor with a squirrel cage rotor. The stator winding is powered by a voltage source via a semiconductor switch. In each time interval the machine is in an asymmetrical transition mode. For the analysis of processes, the method of averaging the quantities in combination with the coordinate transformation is applied, the controls for the solution on the computer are composed of longitudinal and transverse current components. The results of the calculations are presented in the form of current curves. Ill. 2, bibl.2.

DEVELOPMENT OF THE ALGORITHM OF DATA MANAGEMENT AND TRANSFER OF THE ELECTRIC POWER CONSUMED BY THE DISTRICT'S SUBSCRIBERS AND BUILDING MATHEMATICAL MODEL.

M. Gverdtsiteli, R. Arveladze. **"Energy". №4(84). 2017. Tbilisi. p. 16-19. rus. sum geo. engl. rus.**

Instrumental-software equipment complex recording the consumed electric power ensuring the conversion of the electric power recorded by the electric recorders into the impulse digital one, its further integration into the software which, in case of non-payment of the electricity cost, will develop the command to switch the subscriber off, is elaborated. Upon the receipt of the information about the payment, the subscriber will be automatically switched. Ill. 1.

SUPERCONDUCTOR TRANSFORMERS BASED ON ENERGETIC CRYOTRON.

T. Kokhreidze, G. Kadagishvili. **"Energy". №4(84). 2017. Tbilisi. p. 20-29. geo. sum geo. engl. rus.**

Important features in designing the cryotrons such as the value of marginal power in ventile element (valve) of cryotron and current in the managing coil through which the total management magnetic field achieves critical value after switching it on the valve surface and in all points of its volume, is reviewed. Respectively, the process of switching the cryotrons is split in three stages the review of which allows to evaluate fast action of switching element considering the features of the superconductor material as well as the energy losses during switching.

A parameter allowing to fully evaluate the suitability of the given superconductor for the purposes to manufacture the valve in order to conduct the comparative analytical evaluation of the value of the superconductor material of the cryotron valve is suggested. Basic relations that were used in the analysis of the two-loop circuit connected by one cryotron was obtained. Tabl. 1, bibl. 8.

MATHEMATICAL MODEL OF FAST ACTIVE CAPACITY REGULATION EQUIPMENT IN THE ENERGY SYSTEM.

T. Kokhreidze, O. Kheladze. **"Energy". №4(84). 2017. Tbilisi. p. 30-36. geo. sum geo. engl. rus.**

Superconductor inductive collector (SIC) in form of fast active capacity regulation equipment in the energy system is reviewed. Computation mathematical model for the operation of SIC in the energy system which is based on presenting SIC as a power source or with the active non-linear and inductive resistances connected by their equivalent sequence was developed.

Mathematical model developed for SIC functioning will be used in active capacity mode for evaluating its energetic properties providing the sustainable operation of the generators during the power interruption. Ill. 5, bibl. 1.

TRANSFORMER-TYPE POWER LIMITING DEVICE WITH SUPERCONDUCTOR NON-LINEAR RESISTOR USED FOR ENERGETIC PURPOSES.

T. Kokhreidze, P. Kenchoshvili. **"Energy". №4(84). 2017. Tbilisi. p. 37-41. geo. sum geo. engl. rus.**

An action principle for the transformer-type power limiting device with superconductor non-linear resistor used for energetic purposes is reviewed. Numerical calculations of electromagnetic processes of such power limiting devices in the circuits are given. Construction using composite high-temperature superconductor of the lab model is described and experiment results are provided. Ill. 5, bibl. 1.

ANALYSIS OF WORKING OPTIONS OF BELOW 69 KV VOLTAGE NEUTRAL GRID

T.Apriashvili. **"Energy". №4(84). 2017. Tbilisi. p. 42-48. geo. sum geo. engl. rus.**

This article shows medium voltage grid (below 69 kV) neutral grounding types. Founded on years of practice of Isolated neutral grid exploitation, it shows flaws during working hours and its negative impact on a grid. There is discussion about medium voltage grid (below 69 kV) neutral grounding practises that are known and used in the world. In the article there also is example of caused consequences of isolated neutral greed from one-phase grounding. Ill. 7, tabl. 1, bibl. 1.

CARBON DIOXIDE (CO_2) CAPTURE METHODS FOR THE GEORGIAN POWER GENERATION SECTOR.

Kh.Arabidze, T.Jishkariani. **"Energy". №4(84). 2017. Tbilisi. p. 49-54. geo. sum geo. engl. rus.**

CO_2 accumulation in the atmosphere causes global concern called climate change. There is a significant potential of reduction of CO_2 emissions generated by the giant consumers of natural gas as thermal power plants are. The article analyzes: statistical and technical data of natural gas transported to Georgia in 2016. Calculation formula for CO_2 emission is proposed. Amount of Carbon Dioxide generated by the natural gas combustion is determined for 2016. Modern methods and technologies for capture of CO_2 contained in the exhaust gases are studied.
Ill. 3, tabl. 2, bibl. 8.

DETERMINATION OF RELIABILITY INDICATORS FOR LOW-PRESSURE GAS SUPPLY CONSISTING OF TWO RINGS AND A DEAD-END.

G.Baindurashvili. **"Energy". №4(84). 2017. Tbilisi. p. 55-59. geo. sum geo. engl. rus.**

The present deals with the peculiarities of dead-end and ring-shaped gas networks. The major purpose of gas-distributional network is to provide its consumers with constant supply that's why the reliability of complex configuration networks is actual. As a method of the research methodology of regulated discrete condition and systems, also known as Markov's process is used. The given work analyzes reliability of mutually depended ring-shaped and dead-ended configuration networks, allowing to increase the effectiveness of managing the system and its reliability Ill. 3, bibl.11.

THERMALLY EFFICIENT MULTILAYER WALLS WITH INTERNAL LAYER RIB CONTOUR ABUTMENT BEING CONSTRUCTED WITH BRICK AND THIN-PIECE BLOCKS.

G. Loladze. **"Energy". №4(84). 2017. Tbilisi. p. 60-64. rus. sum geo. engl. rus.**

Brick and thin-piece block system of thermally effective multilayer walls with internal layer rib contour abutment being under the construction is suggested.

The walls are performed with the facing panels manufactured by a company called KNAUF. Thermal insulation material is placed between the facing panels and abutment surface layer. Such a solution will result in less amount of stone material to be inserted and at the same time will lead to less construction duration and lower construction costs. Ill. 5, bibl. 5.

ROLLER COMPACTED CONCRETE IN DAM CONSTRUCTION.

N.Dadianu, Iu.Salukvadze. **"Energy". №4(84). 2017. Tbilisi. p. 65-77. rus. sum geo. engl. rus.**

Roller Compacted Concrete (RCC) dam construction provides a high rate of concreting with minimum formwork. Cement low content in RCC causes minimum heat generation from hydration of the cementitious material and thermal stresses reducing in the dam. Features of technology of RCC require special approach for dam construction.

Works high intensity, construction time and cost reduction doing RCC dams very competitive in various hydro construction. Ill. 7, tabl. 4, bibl. 14.

DETECTION OF MECHANICAL FACTORS OF MAIN PIPELINE SYSTEM AND JUSTIFICATION OF ENERGY SAVING REGIMES.

D.Namgaladze, G.Mandaria. **"Energy". №4(84). 2017. Tbilisi. p. 78-82. geo. sum geo. engl. rus.**

Energy saving of main pipeline is very important, as improvement of energy efficiency quality is the priority of main pipeline exploitation. Rating index of main pipeline, namely efficiency of key features of the system triggers transportation of specific consumption of energy product. Managing method of rotation frequency of main pumping aggregate rotor is developed, which ensures maximum coefficient of efficiency in case of changing of scavenging productivity. Ill. 2, bibl. 10.