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ECOLOGICAL ASPECTS OF ARRANGING THE ENERGY RESERVOIRS.

G.Khelidze, B.Pipia, M.Mardaleishvili. "Energy". №2-3(94-95). 2020. Tbilisi. p. 5-15. geo. sum geo. engl. rus.

List of the Georgian energy reservoirs stating their total volume and a mirror surface area as well as grading of the reservoirs by their sizes and water-change intensity based on the above are presented. Factors affecting the environment by the reservoirs, in particular, rise of the ground water level, debris accumulation; impact on local climate; possibility of provoking earthquakes, etc. are reviewed. Positive sides of the reservoir functioning on the example of particular reservoirs such as fighting against floods, their utilization for recreation purposes, etc. are provided. Study of environmentally friendly water-power potential for the purposes of maximally considering environmental requirements in hydropower projects is suggested.

Tabl. 4, bibl. 14.

TASKS OF OPTIMIZING GAS-TURBINE COMBINED CYCLE.

T. Mikiashvili, N. Chagmelashvili. "Energy". №2-3(94-95). 2020. Tbilisi. p. 16-25. geo. sum geo. engl. rus.

At the current stage of the development of the energy industry, major challenge for gas-turbine combined cycle units is improvement of maneuverability, that requires optimization of their thermodynamic parameters, technological schemes, management and regulation systems according to the requirements of their operation modes. Optimization task is based on a multifaceted analysis depending on various factors.

The study is dedicated to thermodynamic analysis and optimization of the parameters of the gas-turbine combined cycle. It includes a formulation of the cycle's thermal efficiency factor in using single and three-pressure steam loops as well as the cases with or without additional fuel combustion; the change of the efficiency factor depending on the changes of the efficiency factors of gas and steam cycles as well as exhaust boilers and thermodynamic parameters is analyzed; key factors affecting the cycle efficiency are identified; the optimization task based on the decision of which the nature of the change of thermal efficiency factor of the combined cycle is determined is formulated – it increases significantly when initial parameters of the gas-turbine cycle increase and its increase is rather insignificant initial parameters of the steam-turbine cycle increase. Increase of the overheated steam pressure does not result in the significant increase of the efficiency factor of the combined cycle. It has an extreme point from where the increase of the initial pressure results in the reduction of the cycle's efficiency factor.

Specific properties of the exhaust steam boiler as well as the change of the exhaust steam humidity as per initial parameters, etc. should be taken into consideration for the real cycle units. At this time, maximum values of the efficiency factor are achieved at the initial parameters that are different from the ideal cycles, and the optimization of the management and planning optimization is conducted for specific conditions of the capacities and operation modes.

Ill. 7.

THE NEW EQUIPMENT FOR AIR HUMIDITY RAISING IN CONDITIONING BUILDINGS

L.Papava, V.Gvachliani, M.Razmadze, G.Gugulashvili. "Energy". №2-3(94-95). 2020. Tbilisi. p.26-31. geo. sum geo. engl. rus.

It is consideration the question of air humidity raising in conditioning buildings. Is performance the new equipment for air humidity rais in buildings, in which this process realization with moisture absorb air prep by from pore structure. The pore structure second end is placed in water bath and continual is impregnated with water. The new equipment give remedy of metal and energetic capacity diminish.

Key words: air conditioning, humidity, temperature, sanitary and hygienic standards, air coolers.

Ill.1, bibl. 5.

DEVELOPMENT OF SOLAR PHOTOELECTRIC ENERGY IN GEORGIA.

K.Kobachidze, L.Kobachidze. "Energy". №2-3(94-95). 2020. Tbilisi. p. 32-42. geo. sum geo. engl. rus.

The history of the solar photoelectric energy of Georgia starting from the Soviet times to-date is described.

Information on the development of the technology of p-n structures - beta and thermo-photo converters which are similar to the solar photoelements in Ilia Vekua Sokhumi Physical and Technical Institute and the base is provided.

Results of research of solar radiation reduction in unelectrified villages located in the high mountainous regions of Pshav-Khevsureti and Khevi within the framework of Georgian National Scientific Foundation grant are reviewed.

Dynamics of the increase of the quantity and capacities of the solar photoelectric system in Georgia by years is provided.

Parameters and photos of the solar power plants connected to the grid constructed by the company – Mzissakhli are given.

Foto 11, ill. 3.

DEVELOPMENT OF SOLAR PHOTOELECTRIC ENERGY IN THE WORLD.

K.Kobachidze, L.Kobachidze. "Energy". №2-3(94-95). 2020. Tbilisi. p. 43-51. geo. sum geo. engl. rus.

The history of the development of the solar photoelectric energy from the date of the discovery of photoelectric phenomena to-date is briefly described in the review. Structures of solar photoelements and their technological evolution and development within the last 50 years, types of the solar photoelements by base material and their share at the world market, dynamics of the price reduction of the solar elements and electric power received from the solar plants within the last 10 years and world's top ten leading countries in the field of the solar energy are provided.

Dynamics of the development of the photoelectric energy in the world and its growth tendencies over the last years is analyzed.

Ill.9, tabl. 1, bibl. 4.

STUDY OF RESOURCE CAPACITY OF GETE THERMOELEMENTS WITH ANTISUBLIMATION VITROUSENAMEL COATING.

F.Basaria, G.Darsavelidze, I.Tabatadze. "Energy". №2-3(94-95). 2020. Tbilisi. p. 52-58. rus. sum geo. engl. rus.

It is shown, that thermoelement branches based on GeTe alloys, coated with antisublimation vitreous enamel can operate in conditions of heating of alloys at high temperatures for a long time (~5000 hrs) without the occurrence of any signs of destruction in the structure.

It is concluded, that observed increase of electrical resistance and reduction of efficiency of thermobattery during a long-term operation of thermobattery are stipulated by solid-phase chemical processes that lead to the appearance of pores and voids in the areas of commutation of branches. This circumstance causes a continuity rupture of a thin layer of vitreous enamel coating in these places. During the selection of vitreous enamel components weak chemical interaction of p-type GeTe (Ge-Te-Bi-Cu) alloy with vitreous enamel coatings was envisaged, which is confirmed by research. As a result, a low-volatile n-type phase is formed, which does not impair the protective action of the coating and the thermoelectric characteristics of the thermoelements.

Ill. 3, tabl. 1, bibl. 11.

DETERMINATION OF THE DYNAMIC PROBABILISTIC CHARACTERISTICS OF HEAT CAPACITY WHEN SUPPLYING NATURAL GAS TO GEORGIA.

T.Gvanidze. "Energy". №2-3(94-95). 2020. Tbilisi. p. 59-64. geo. sum geo. engl. rus.

Natural gas is one of the main elements of the fuel and energy system. The demand for natural gas is growing every year. The big advantage of gas fuel is its ability to be transported through pipelines. In addition, natural gas plants have higher efficiencies than other fuels because of their high heat capacity of natural gas. It is important that the values of the heat capacity of natural gas should be within the standard range. Therefore, the purpose of this work is to

determine the emissions of the series of calorific parameters, so that they do not go beyond the specified range, which is very important. The paper discusses a normal stationary random process at a given level with a certain interval, and the determination of the average number of outliers is obtained using our formula. The inversion of the heat capacity series is performed (its rotation on the mathematical expectation axis by 180^0), and then its shift. Since the import of gas from Azerbaijan is being considered, the amount of emissions to a given level is finally determined.

Ill. 4, bibl. 11.

MAGNETIC FEATURES OF COMPOUNDS OF ACTINOIDS WITH 3D METALS.

G.Kapanadze, Z.Chachkhiani. "Energy". №2-3(94-95). 2020. Tbilisi. p. 65-74. rus. sum geo. engl. rus.

Magnetic features of the compounds of actinoids with 3d metals are reviewed.

Results prove that various magnetic features of these substances are satisfactorily removed from the rigid zone model positions considering that thorium can give almost all of its valence electrons in 3d compound zone and uranium valence equals to 4.

Ill. 7.

ON THE ADVISABILITY OF MAKING AMENDMENTS TO THE LEGISLATIVE NORMS RELATING TO AUTOMOBILE GAS-CYLINDER INSTALLATIONS WITH LIQUEFIED AND GASEOUS GAS IN GEORGIA.

I.Beroshvili, E.Machavariani, I.Mgaloblishvili. "Energy". №2-3(94-95). 2020. Tbilisi. p. 75-84. geo. sum geo. engl. rus.

Recently, the number of those wishing to switch vehicles to liquefied propane-butane and natural gas has sharply increased in Georgia. Often this translation process is carried out in artisanal enterprises and is of rather poor quality, which sharply increases the danger of traffic.

Based on the above, the article examines the current state of installation and operation of cylinders with liquid propane-butane and natural gas in Georgia and the existing standards for the timing of their inspection.

In order to improve road safety, new legislative norms have been developed and the feasibility of making appropriate changes to the technical regulations established by the Government of Georgia has been substantiated

The article discusses the current state of installation and operation of gas cylinder systems in vehicles and the current standards for the timing of their inspection in Georgia.

Bibl. 19.