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CONTENTS

GNERC – 75!
***D. Chomakhidze, P.Tsintsadze*.**
"Energy". №3-4(103-104). 2022. Tbilisi. p. 5-11. geo. sum geo.engl.rus.
The article presents the reasons and history of the establishment of the Georgian National energy and Water Supply Regulatory Commission (GNERC). Its main functions, rights and obligations are described. The results achieved over the past 25 years are presented and their impact on the development of energy and water supply in Georgia is analyzed. The article is dedicated to the memory of the first chairman of the GHERC Elizbar Eristavi.

POSSIBILITIES OF IMPLEMENTING HYDRO-ACCUMULATING POWER PLANTS IN GEORGIA.
G. Khelidze, B. Pipia, N. Kvirkvelia.
"Energy". №3-4(103-104). 2022. Tbilisi. p. 12-19. geo. sum geo. engl. rus.

Hydro-accumulated power plants (HAPP) have long been operating around the world as one of the best energy-saving technologies. There is no HAPP in Georgia yet, however preliminary design and research works are being carried out for its implementation which is important for ensuring that the peak energy demand is met with one's own resources. The dynamics and trends of HAPP development, operations modes of HAPP in the energy system as well as the role of HAPPs in terms of integration of unstable renewable energy producers into the energy system are discussed. In addition, the prospects for the implementation of HAPP considering the target model of the electric energy market in Georgia are investigated.
Ill. 2, bibl. 9.

PECULIARITIES OF INSTALLATION OF FIBERGLASS REINFORCED PLASTIC PIPES (GRP) IN HYDRO POWER PLANT (HPP) PRESSURE SYSTEMS
L. Shatakishvili, N. Kikacheishvili, M. Mardaleishvili, J. Kvachantiradze.
"Energy". №3-4(103-104). 2022. Tbilisi. p. 20-27. geo. sum geo. engl. rus.

Use of the fiberglass reinforced plastic (GRP) pipes in the pressure systems of HPPs has been started for more than two decades worldwide, and even an increasing trend of using these pipes, including at the hydropower facilities of Georgia, is observed at present. Pressure pipelines are highly responsible structures therefore it is relevant to study the issues of the use of GRP pipes as turbine pipelines of HPPs and the peculiarities of the installation of this type of pipes. The issues of correctly conducting the installation works ensuring a long-term reliable operation of the mentioned pipes are reviewed.
Ill. 10, bibl. 6.

CALCULATION OF ENVIRONMENTAL HYDROPOWER POTENTIAL ON THE EXAMPLE OF THE TSKHENISTSKALI RIVER.
B. Pipia, M. Mardaleishvili, G.Tsivkarashvili, N. Kikacheishvili, T. Shoshiashvili.
"Energy". №3-4(103-104). 2022. Tbilisi. p. 28-34. geo. sum geo. engl. rus.

When calculating the hydropower potential of rivers, it is important to consider the amount of ecological flow from the hydropower facilities downstream. This creates opportunity to determine the actual hydropower potential, which can be used in line with environmental requirements. For this purpose, according to the method developed by us, the calculation of environmental water consumption and it's corresponding ecologically appropriate hydropower potential at the intersection of river Tskhenistskali Rtskhmeluri HS has been carried out.
Ill. 1, tabl. 2, bibl. 10.

AUTOMATED TEST-DIAGNOSTIC SYSTEMS FOR QUALITY AND MANAGEMENT CONTROL OF ASYNCHRONOUS MOTORS USING COMPUTER EQUIPMENT.

T. Kokhreidze. D. Makandarashvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p. 35-41. geo. sum geo. engl. rus.

Automated test-diagnostic systems for quality and management control of asynchronous motors using computer equipment are reviewed. The following have been processed: block diagram of the algorithm for controlling the nominal indicators of the asynchronous motors with short-circuited rotor according to the values of the idle current and losses, short-circuit current and losses; block diagram of the algorithm for diagnosing the causes of disruptions in the technological processes of manufacturing asynchronous motors. Tuning and diagnosis of the asynchronous motors are carried out according to the processed block diagrams by processing the results of measurement parameters of idle and short-circuit modes.

Ill. 3, bibl. 3.

DETERMINATION OF COMPLIANCE OF NOMINAL INDICATORS WITH STANDARD REQUIREMENTS ACCORDING TO THE RESULTS OF THE ACCEPTANCE-TRANSFER TESTS OF ASYNCHRONOUS MOTORS.

T. Kokhreidze, D. Makandarashvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p. 42-51. geo. sum geo. engl. rus.

Determination of the compliance of nominal indicators with standard requirements according to the results of the acceptance-transfer tests of asynchronous motors is elaborated. Relationship of the nominal indicators with the acceptance-transfer test parameters is established. The range of the permissible values for the short-circuit and idle current is defined, which is very important for diagnosing the violation of technological processes according to the results of asynchronous motor tests.

Ill. 4, bibl. 3.

DIAGNOSIS OF VIOLATIONS OF TECHNICAL PROCESSES ACCORDING TO TEST RESULTS OF ASYNCHRONOUS MOTORS.

T. Kokhreidze. D. Makandarashvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p.52-60. geo. sum geo. engl. rus.

Diagnosis of the violation of the technological processes according to the results of asynchronous motor tests is reviewed. It is shown that the asynchronous motor test should not only reveal the compliance of the electric motor indicators with technical requirements but should also form the basis for managing the manufacturing quality. Since the acceptance-transfer test results are evaluated by combining three pairs of the parameters of these tests, we should conduct an indicative diagnosis of the violations of the technological process.

Ill. 4, bibl. 4.

ANALYSIS OF FORECASTING HYDROLOGY ON THE RIVER RIONI.

G.Mirinashvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p. 61-64. geo. sum geo. engl. rus.

The article discusses the possibility of forecasting the hydrology of the Rioni river basin. The mentioned analysis is carried out in the module MORDOR-SD. The elements included in the prediction model are described. The results obtained are shown. Modeling showed that it is possible to forecast the inflow of water consumption on the Rioni river basin with high accuracy, the permissible deviation should not exceed 10% when forecasting day ahead.

Ill. 3.

EXPERIMENTAL STUDIES OF THERMOELECTRIC DEVICE FOR INTRACAVITARY HYPOTHERMIA.

L.Papava,T.Isakadze, M.Razmadze, G.Gugulashvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p. 65-71. geo. sum geo. engl. rus.

One of the effective methods of treatment of diseases in otorhinolaryngology, gynecology, proctology, urology anddentistry is intracavitary hypothermia. The implementation of this technique can be carried out through the use ofthermoelectric device as a source of cold. This devices are characterized by high efficiency, reliability, environmentalfriendliness, quietness, accuracy of the dosage of thermal effects, unlimited service life. The design of the thermoelectricdevice for intracavitary hypothermia, consisting of two thermoelectric batteries (TEB), interconnected by means of anall-metal heat pipe, equipped with an acting applicator and a liquid heat exchanger. Full-scale tests of the device on theexperimental stand were carried out. As a result of experimental studies it was found that without load the temperatureof the applicator is stabilized after about 4–4,5 min. At the same time, the increase in the current of the additional TEB from 5 to 12 A when the main TEB current is 23 A, reduces the temperature from 237 to 224 K. In the process ofcarrying out the necessary procedures reducing the temperature of the biological object can be achieved at the supplycurrent of the main and additional TEB, respectively, 23 and 12 A after 2,5 min.

Ill. 4, bibl. 8.

PHYSICS AND ENGINEERING SPECIALITIES.

V. Kvintradze, M. Zhgenti.

"Energy". №3-4(103-104). 2022. Tbilisi. p. 72-77. geo. sum geo. engl. rus.

The article is concerned to the link between physics and engineering specialities. There are given small number of the engineering specialities and their common senses. Also considered some items of physics as a fundamental science which is necessary for the engineering specialities (new materials and their properties for applying them of the modern technologies in the field of engineering business). There are considered the ways of what we have to do for growth the high level professionals in the field of technical brunches.

Bibl. 3.

EXAMPLES OF IMPLEMENTATION OF ENERGY MANAGEMENT SYSTEM IN INDUSTRY

M.Pitskhelauri.

"Energy". №3-4(103-104). 2022. Tbilisi. p. . 78-85. geo. sum geo. engl. rus.

For industrial development is advisable to increase economic growth by reducing energy consumption and related environmental and climate change impacts. Industry must substantially increase energy efficiency and gradually move from carbon-intensive technologies to low-carbon technologies. Any organization that wants to improve its energy efficiency, can use ISO 50001: 2018 standard. The standard covers the use of Environmental Indicators (EnPIs) and related Energy Baseline Indicators (EnB). The paper describes the advantages of ISO 50001 for the introduction of an energy management system and examines examples of the introduction of an energy management system in industry. Research has shown that industry can consume annual energy and reduce their costs through better energy management, often only by making operational changes with minimal or zero investment.

Bibl. 15.

RESEARCH ON THE SCADA SYSTEM

N.Jaiani.

"Energy". №3-4(103-104). 2022. Tbilisi. p. . 86-89. geo. sum geo. engl. rus.

With the rapid development of information technology, People become more and more dependent on the automatic technology in some special industries like oil, electricity and chemistry. As a novel technology, Supervisory Control and Data Acquisition (SCADA) provides core functionality of Energy

Management Systems (EMS) and Distribution Management Systems (DMS) in combination with base system services, the data engineering system, the user interface, and the front-end.
Il.1, bibl. 2.

IN ORDER TO INCREASE THE STABILITY OF THE ELECTRIC POWER SYSTEM, INSTALLATION OF ENERGY STORAGE NEAR 500 KV SUBSTATIONS AND JUSTIFICATION OF ITS NEED

B.Jintchveleishvili.

"Energy". №3-4(103-104). 2022. Tbilisi. p. . 90-95. geo. sum geo. engl. rus.

The results of the conducted investigations are obtained based on the day-to-day observations of the country's electric energy regimes, on the basis of which the need for Energy storage is substantiated, which is why the real regime images of the energy system are presented, measures necessary for continuous balancing of the country's consumption and supply and mode aspects of parallel operation with neighboring energy systems are also outlined.
Bibl. 18.