

ENERGY

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SUMMARIES

THE SUSTAINABLE ENERGY ACTION PLAN FOR THE CITY OF TBILISI (SEAP). *G.Arabidze, I.Pkhaladze.* "Energy". №2(74). 2015. Tbilisi. p. 4-11. geo. sum geo.engl.rus.

The provided article is presenting the Tbilisi city Sustainable Energy Action Plan (SEAP). Based on the 2009 baseline emission inventory the transport sector is considered the biggest emitter of CO₂ emissions. Rehabilitation and the development of the transport infrastructure are considered the sector short term strategy. The mid-term strategy is aimed at the increase of public transport share of the sector, and the long term strategy is build on the plan of limiting private transport and incentivizing the use of the low emission vehicles. As for the public and residential building sectors the plan is the introduction of the energy efficiency in heating systems and promoting the use of renewable energy resources. The Business as Usual (BAU) scenario presents energy use and 2020 GHG emissions trend in public and residential buildings.

REGARDING CONCEPTS IN HYDROLOGY. *T. Ambroladze.* "Energy". №2(74). 2015. Tbilisi. p. 12-15. geo. sum geo.engl.rus.

In modern conditions, a solution of significant economic tasks in hydrology requires an intensive mathematization of an issue. The latter conditions the idealization of the process. During this time, a mathematical rigor should be kept as far as possible. There have been discussed those difficulties, which impede to keep rigor totally in the conditions of idealization. It is necessary to search for new methods, which ensure the practical use of obtained results and the corresponding accuracy of requirements of a task.

THEORETICAL METHOD OF SILT PROPAGATION FORM PREDICTION IN ESTUARIES AT UNSTEADY BASE EROSION LEVEL. *P.O.Baljyan, G.I.Karapetyan, A.A.Sarukhanyan, N.G.Hovumyan.* "Energy". №2(74). 2015. Tbilisi. p. 16-21. engl. sum geo.engl.rus.

The work studies river-bed transformation processes occurring at rivers mouths. Solution of this problem is of an important theoretical and practical interest, for silt sedimentation in the costal zone by rising marks of the river bottom builds up favorable conditions for delta formation which is a serious danger for nearby located objects. For prediction of possible development of channel conditions on the basis of the developed mathematical model a method is suggested for calculation of parameters of stabilized channel transformations in case of the coastal mark rise at the mouth section.

ABOUT MODELING OF AUTOMATIC LOAD SHEDDING. *G.Arziani, V.Vakhtangadze, M.Rukhvadze.* "Energy". №2(74). 2015. Tbilisi. p. 22-25. geo. sum geo.engl.rus.

Necessity of modeling of automatic load shedding is explained in this article and algorithm of model building is presented. Results of modeling in case of full scheme of Georgian system and its equivalent are shown. Algorithm of model of equivalent of automatic load shedding and calculation results are presented.

OPTIMAL RELATIVE INCREMENT OF CAPACITY LOSS IN POWER NETWORK. *G.Makharadze, P.Akhaladze.* "Energy". №2(74). 2015. Tbilisi. p. 26-29. geo. sum geo.engl.rus.

In the article there is analyzed meaning of optimal relative increment of capacity loss in power network. There is displayed that in a specific network there will be an uniquely specified some limiting value of relative increment of losses following which post-loading compensation is noneconomic and we named the value as Optimal Relative Increment. The discussion is also held on a quality of optimal reactive loading compensation. There is specified impact of technical and economic index of network and compensating installation upon numerical value of optimal relative increment. Ill. 2, tabl. 1, bibl. 1.

PRELIMINARY MODELING RESULTS OF REACTIVE POWER GENERATION FROM BOILING LIQUID ON THE HEATING SURFACE. *E.Machavariani, N.Ksovreli, M.Jikhvadze.* "Energy". №2(74). 2015. Tbilisi. p. 30-35. geo. sum geo.engl.rus.

The paper presents developed by us the physical and geometric models of the phenomenon of reactive power generation from boiling liquid on the heating surface. These models are necessary for examination of conditions of reactive power formation from boiling liquid on the heating surface.

Our models are based on the reunification of vapor bubble increasing pumping effect and concept of evaporation of the fluid wedge which is on the heating surface, under of vapor bubble. This both concepts correspond well with one another and based on this, we have developed an adjusted geometric model of reactive power generation phenomenon.

From the results obtained, we conclude that using the geometric model developed by us, it will be possible exact mathematical modeling of study phenomenon.

OPERATING MODE OF A GENERATOR BY ARTIFICIAL ASYMMETRY IN STATOR WINDING.

I.Bijamov, M.Dvalidze. "Energy". №2(74). 2015. Tbilisi. p. 36-41. rus. sum geo.engl.rus.

Possibility of application of operating mode by an artificial asymmetry in stator winding of hydro generator in special occasions for increasing a reliability of station power generation is discussed. The artificial asymmetry occurs during damage of a stator winding by installing fastener in an end winding, which disables the damaged coil. Necessity of detailed research of all acting factors, accompanying to such abnormal mode of the generator is shown, for determination clear conditions and limitations of moving to this mode and its implementation. An efficiency and expediency of application of this mode should be evaluated in each case for separate hydropower station.

ENERGY BALANCE OF GEORGIA OF THE END OF 20-TH CENTURY AND EARLY 21-TH CENTURY. *B.Chanturidze. "Energy". №2(74). 2015. Tbilisi. p. 42-47. geo. sum geo.engl.rus.*

In labour defines Georgian electric balance wick's content includes defects during the years.

It includes the Soviet Union period's electric balance compare with independence period's electrical balance.

Comparison depends as electroanargy produce side as use side, in wick foresee electroenergy's lack size.

It is important to express the latest years (especially 2012-13 years) electric balancy is condition's analyses in wick appears what kind of role takes part electro balance in country's energetical and economic development.

MATHEMATICAL CALCULATION OF AN ACTIVITY OF METALLURGICAL SLAG COMPONENTS AND EXPERIMENTAL CHECK OF RESULTS. *B.Gogichashvili, T.Tsertsvadze, A.Papiashvili. "Energy". №2(74). 2015. Tbilisi. p. 48-52. geo. sum geo.engl.rus.*

Slag has a particular importance in steel production. It is involved in management of redox processes, also in removal of harmful substances, sulfur and phosphorus from the liquid steel, cleaning metal from nonmetallic inclusions. Calculation of slag components' activity by A.Kozheurov method is discussed. An optimum composition of the slag is determined, which ensures a possibility of simultaneously dephosphorization and desulfurization of the liquid steel. Mathematical calculation of the results and mathematical expression of the given curves are carried out. Experiment results, based on calculation results are presented. The obtained results have a practical meaning, because there is a possibility of a preliminary forecast. This will make possible to reduce expenses of expensive materials and to decrease cost price of the final product.

GEORGIAN ELECTRO LOCOMOTIVES THAT CREATED IN THE 2000 Y. *K.Tsereteli, N.Kereselidze. "Energy". №2(74). 2015. Tbilisi. p. 53-58. geo. sum geo.engl.rus.*

The article describes locomotives that were released in Tbilisi car-building factory in 2000 year. Also there are described constructive features and news, which are used for their creativity. There are reviewed the designation and imitative models of impedance set. In this article schemes are reviewed as MATLAB's virtual models.

GEOTHERMAL WATER, NEW TECHNOLOGIES IN THE SYSTEMS OF HEAT COLD.

K. Vezirishvili-Nozadze, L. Papava, M. Razmadze, N. Kezheradze. "Energy". №2(74). 2015. Tbilisi. p. 59-63. geo. sum geo.engl.rus.

This article reviews the authors' opinion on those specific issues which are agro industrial complex in utilization of geothermal waters. As a result of processing the data of experiments, empirical formula has been obtained for accounting the specific heating load of greenhouses.

GLOBAL TRANSPORTATION - ENERGY COMPLEX. *T.Pkhovelishvili. "Energy". №2(74). 2015. Tbilisi. p. 64-69. geo. sum geo.engl.rus.*

Earth has a colossal, Practically inexhaustible heat energy, Which is represented with hot rocks form. Available Technologies, Do not allow their wide use.

In the present article, is well-known argued by us, Based on of the invention in the patent, Analyzed and developed the idea of the level of underground hot mining Rocks thermal energy to electric energy intake and Its cost-effective implementation of new technology.

TRAFFIC BRIDGES' ARCHITECTURE ON AN EXAMPLE OF TBILISI CITY. *T.Lordkipanidze. "Energy". №2(74). 2015. Tbilisi. p. 70-74. geo. sum geo.engl.rus.*

One of the main problems regarding unloading Tbilisi traffic is lack of bridges over the river Mtkvari. Architectural and urban issues of traffic bridges, also highway planning and issues regarding creating recreational zones around them have been discussed. Construction of cascades of bridges of Ortachala hydropower station type is proposed, the implementation of which allows getting certain energy profit, possibility of unloading City and additionally possibility of using river transport.

MISTAKE, IGNORANCE (PROFANIZM) OR CRIME? *Sh.Gogoladze*. "Energy". №2(74). 2015. Tbilisi. p. 75-78. geo. sum geo.engl.rus.

In Mtskheta, on a quite large area, nearby Svetitskhoveli Cathedral Church were carried out restoration-reconstruction works on almost all objects, which caused debasement of the significance of the Cathedral Church.

By means of compositional standards, postulates and other requirements those mistakes are considered, which were made during implementation of renovated panorama.

In the article, there are also discussed, certain recommendations, regarding high values of Svetitskhoveli panoramic views, in order to carry out arrangements for an advantageous perception of the Cathedral.