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S U M M A R I E S

LOW TEMPERATURE WATER BASED POWER SAVING SYSTEM OF HEAT AND COLD SUPPLY. ***V. Jamarjashvili, A. Amiranashvili, M. Lordkipanidze, E. Tumanishvili, N. Chakhvashvili.*** **"Energy". №4(68). 2013. Tbilisi. p. 4-7. geo. sum geo.engl.rus.**

Next evolution option of technological plan realizing co-evolutionary heat and cold method allowing to expand the area of using heat and cold source – low temperature water area is presented. Ill 1, bibl. 1.

IMPACT OF IMPURITY ON NEW TRANSFORMER OIL. ***R. Chikhladze, K. Chikhladze.*** **"Energy". №4(68). 2013. Tbilisi. p. 8-12. geo. sum geo.engl.rus.**

The impact of solid impurity on features of new and regenerated transformer oil, in particular, on a break-through voltage of oil, dielectric losses, specific resistance and surface tension value, are reviewed. It is experimentally justified that by increasing the amount of solid impurity particles, the above mentioned features decrease significantly and in some cases, exceed maximum allowed operational rate. Ill. 2, tabl. 2, bibl. 5.

EFFICIENCY OF USING EXPANDER-GENERATOR UNITS AT 9^{TH} ENERGY BLOCK OF MTKVARI-ENERGETICS LTD. ***G. Chitashvili, N. Kevkhishvili, N. Zakaidze, D. Zakaidze.*** **"Energy". №4(68). 2013. Tbilisi. p. 13-18. geo. sum geo.engl.rus.**

Possible use of expander-generator units (egu) at the 9^{th} energy block of Mtkvari-Energetics Ltd. is reviewed. Basic features of the energy complex (9^{th} energy block + egu) with the dependence of preheating gas temperature: electric power, efficiency coefficient, specific consumption of provisional fuel, etc.are identified. It is determined that in the increase of such temperature (from 200^0 to 500^0C), capacity of egu increases and reaches maximum level of 8 MW when heating temperature is 500^0C. At this time, specific consumption on the complex increases several times, although in most cases fuel is saved on the account of using egu. Based on the analysis, it has been determined that in increasing the efficiency coefficient of 300 MW energy block, the capacity of egu decreases several times and specific saving of fuel decreases as well.

Summary: use of egu at the 9^{th} energy block of Mtkvari-Energetics Ltd. will always be profitable from energy and efficiency point of view. Even under current conditions it is realistic enough to get additional power in the amount of 5-8 MW saving ~2-2,5 g of provisional fuel per generated kWa/h electric power. Ill. 2, tabl. 3, bibl. 8.

CHOICE OF OPTIMUM PARAMETERS AIR POWER TRANSMISSION LINES. ***G.Machkaradze, M.Machkaradze.*** **"Energy". №4(68). 2013. Tbilisi. p. 19-24. geo. sum geo.engl.rus.**

The article presents a simple method for selecting the optimal nominal voltage and wire size linny air power, which is more consistent with the principles of market economy. Ill. 1, tabl. 3, bibl. 3.

DEVELOPMENT OF MATHEMATICAL MODEL FOR OPTIMIZATION OF ELECTRICITY TRADE IN COMPETITIVE CONDITIONS. ***Z.Gachechiladze, T.Magradze, N.Magradze.*** **"Energy". №4(68). 2013. Tbilisi. p. 25-33. geo. sum geo.engl.rus.**

Studies have been developed on the basis of optimal competitive electricity trading model with new market participants, which is based on the widespread criteria, as is maximum benefits of market participants. The actuality of current research is based on the fact that the promotion of competitive environment and deregulation of market participants will lead to the creation of retailers institute and will cause increase of number of market participants . All this , in turn, will lead growth in the number of commercial transactions in the industry, which requires a new trading platform and a well- developed computer program.

In the article was developed optimal trading methodology for each trading time period and according to the proposed methodology was fulfilled competitive electricity market simulation mathematical modeling. Ill. 2, tabl. 7, bibl. 6.

GAS DISTRIBUTION NETWORK IN READINESS COEFFICIENT OF DETERMINATION, ACCORDING TO THE NATURAL DATA. ***G.Sanikidze.*** **"Energy". №4(68). 2013. Tbilisi. p. 34-37. geo. sum geo.engl.rus.**

The paper provides the definition of the safety indices of the gas distribution industry according to the natural data. As is known during the discussion great attention is paid to the readiness coefficient of the gas distribution network technical performance as in the planning stage so in the operation mode. It is determined as a probability to ensure that the gas distribution network functioning is satisfactory in any

moment of its immediate exploitation. On the basis of the natural data the real coefficient of gas distribution is adopted and the analysis is made. Ill. 2, bibl. 4.

ANALYSIS OF THE EQUATIONS DESCRIBING THE UNSETTLED LIQUID MOVEMENTS IN A PIPELINE. *G.Mandaria*. "Energy". №4(68). 2013. Tbilisi. p. 38-41. geo. sum geo.engl.rus.

The paper deals with the analysis of the equation describing the unsettled liquid movements in a pipeline. The reasons that cause unsettled liquid movements in a pipeline may be different. They include the temporary consuming; activating and deactivating the consumers; turning on and off the pump units; regulation by locks, etc. One particular case is considered - the jump of the pressure at the beginning of the pipeline. There are approved the equations for initial and boundary conditions. Also adopted the solutions of unsettled liquid movements by analytical or digital methods. Bibl. 2.

DESIGN OF MINERAL-THERMAL OVEN. *Z. Simongulashvili, S. Nebieridze.* "Energy". №4(68). 2013. Tbilisi. p. 42-48. geo. sum geo.engl.rus.

There has been discussed the dependence of electric parameters on its geometrical dimensions in a ferro-alloy melting stove. On the basis of the experimental researches, the optimal dimensions of the diameter of an electrode, the diameter of disintegration and diameter of the bath for low-power electric stoves has been determined in the work. It is necessary to distribute the currents equally around an electrode and at the same time to increase electric resistance of charge materials for achieving a high technical-economic index. Ill.1, tabl.5, bibl. 9.

ELABORATION OF STRUCTURAL CIRCUIT FOR POWER TRANSMISSION WITH ONE-BRIDGE TRANSFORMERBIPOLAR LINE OF DIRECT CURRENT. *G.Kokhreidze, S.Nemsadze, M. Gabrashvili, Sh. Pkhakadze.* "Energy". №4(68). 2013. Tbilisi. p. 49-53. geo. sum geo.engl.rus.

Elaboration of the functional structural circuit for the transmission of the direct currentwhich includes generators, load, rectifier and inverter station is presented. Block circuit for transmitting the direct current through the bipolar line is given. Neutral points of rectifier and inverter bridges are grounded. In such case we have two-pole transmission of the direct current. Ill. 2, bibl. 3.

MODERN LAYOUTS OF ELECTRIC POWER GENERATED BY WIND ELECTRICAL EQUIPMENT UNDER CONDITIONS OF OPERATING IN PARALLEL WITH ELECTRICAL POWER SYSTEMS. *G. Kokhreidze, S. Nemsadze, Z. Rekhviashvili, Sh. Pkhakadze.* "Energy". №4(68). 2013. Tbilisi. p. 54-57. geo. sum geo.engl.rus.

Two generalized methods – differential and non-differential groups to get alternating three-phase current of the direct current when rotating driving shaft with alternating current are reviewed.

Structural layout reflecting joint operation of the wind power plant and receiving alternating current network is elaborated. Ill 1, bibl. 4.

HARD CONCRETE. *A. Chikovani. D. Vardiashvili*. . "Energy". №4(68). 2013. Tbilisi. p. 58-62. geo. sum geo.engl.rus.

Effective binding material, concrete and binder modificator, active mineral additives have been observed and widely used at the end of the century and significantly enriched our opinion about concrete structure and features and structure forming processes. All the above allowed us to get 100 MPa and harder concrete with 500…600 grade cement. Ill 2, tabl. 1, lit. 4.