the bottom line of the sole of the ledge are effective. The authors showed that for the first 0.5 to 0.7 ms the average pressure in the gap is at least an order of magnitude less than the pressure in the borehole at a distance of approximately 1.5 m from the gap. For the indicated time, the rarefaction wave in the products of explosion passes approximately 1.5 m. Thus, parts of the blasthole charge act independently of other parts located at a distance of about 1.5 m.

Investigation of the wave processes occurring in the tamping of the charge allows us to conclude that, when selecting material of tamping and the blasting method, a small charge (about 10 kg) placed in the tamping allows a significant reduction in the output of the boulders from the top of the ledge.

The researches were carried out within the framework of state budget researches at the Dnipro University of Technology.

Keywords: explosion, zones of destruction, structure of borehole charges

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SUBSTANTIATION INTO PRACTICAL APPLICATION OF THE BIOMASS GASIFICATION TECHNOLOGY

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Purpose. Consumption of energy resources in the nearest time will provoke their rapid rise, accompanied by their gradual exhaustion. This situation requires a search of internal reserves based on renewable energy. Energy crisis prompts European countries for searching an alternative source of renewable energy. Important part of those efforts is conducting of integration research and development of road maps for sustainable energy use for whole continents. That is why the primary purpose of current research is to try find solution in diversification of energy resources.

Methodology. Using analytical approach were determined that the share of renewable energy in the global energy production today make up 13% of these 77% accounts for bioenergy main raw material which is wood biomass (87%) and the share in renewable energy according to the World Energy Recources (Survey of energy resources) for 2013 was 11%, at that according to optimistic indicators for 2020 it should make 22%.

Findings. There are many bioenergy routes which can be used to convert raw biomass feedstock into a final energy product. Several conversion technologies have been developed that are adapted to the different physical nature and chemical composition of the feedstock, and to the energy service required (heat, power, transport fuel). Upgrading technologies for biomass feedstocks (e.g. pelletisation, torrefaction and pyrolysis) are being developed to convert bulky raw biomass into denser and more practical energy carriers for more efficient transport, storage and convenient use in subsequent conversion processes.

Combination the technology of borehole underground coal gasification with biomass gasification that is proposed to consider is quite promising direction of alternative energy development. Firstly it will reduce the capacity cost including expensive equipment of surface biomass gasification, as all thermo-chemical processes take place in underground gasifier at the same time in his place of occurrence. Secondly it allow to resolve the issue of environmental and ecological cleanliness of the process, as underground coal gasification technology developed on a new level in a closed environment-friendly cycle.

In order to carry out of biomass gasification technology combined with coal seam gasification it is only necessary to make some adjustments in the existing technological schemes. Fragments of biomass are injected into the gasifier along a controlled pipeline in the reaction channel, where it will convert to combustible gases. It will allow not only get more energy, but also solve the problem of organic waste utilization in some regions of Ukraine.

Keywords: gasification, energy resources, feedstock, gasifier, biomass

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GEOMECHANICAL PROCESS MODELING IN THE BLACK SEA SEALED SEALS AT THE DEVELOPMENT OF GAS HYDRATE DEPOSITS BY JET TECHNOLOGY

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Purpose. Simulate physical and mechanical processes of the bottom layer, arising during at the development of gas hydrate deposits with using jet technology.

Methodology. The research was conducted by simulating of the bottom array behavior with methods of finite elements. The basic dependences in the thermobaric balance of the deposit are determined.

Findings. Software products on the basis of finite element methods for modeling the process of gas hydrate deposits development of the Black Sea are analyzed. The simulation of the basic geomechanical processes taking place in the gas hydrate-containing bottom massif with its developing jet technology is carried out. The basic technological parameters of the model in the array thermobaric equilibrium are established. The technological parameters dependencies of the jet technology on the bottom gas hydrate deposit development are determined. A graduation is made on the height of the hydrated deposit during the development, taking into account the hydrostatics of the surrounding rocks. The ecological assessment of the proposed solutions confirms the feasibility of their implementation of the Black Sea bottom, namely in the paleorossi river Dnipro.

They contain the researches, which were conducted within the project GP – 489, financed by Ministry of Education and Science of Ukraine.

Key words: gas hydrate, modelling, jet technology, Black Sea bottom.