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OPTIMIZATION OF PARAMETERS OF TECHNOLOGICAL SCHEMES OF COAL MINES

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Purpose. Develop a tool for assessing the state of technological schemes of coal mines, based on the study of the real state of the technological scheme, taking into account the hierarchical links between the elements of the system.

Methodology. An integrated research method was used, including statistical analysis to establish the relationship between the technical potential indicator and a number of independent indicators of mine production and economic activity, the Pareto multi-criteria method for assessing the level of potential and the ability of

the coal mine to innovate. The methods of discrete mathematics on network models are used to optimize the parameters of operation and streamline the structure of production relations.

Findings. Established patterns of formation of production and economic activities of coal mines, taking into account the level of concentration of mining operations, labor productivity, the rate of progress of the line of stope, the cost of finished products. Mathematical models describing the "technical potential" indicator were developed, based on a study of the dependencies between this indicator and the mining and geological and technological indicators of the mine. It has been proven that reproducing the optimal values of the parameters of the technological scheme means the full realization of the economic potential of the mine, that is, the maximum achievable (reference) level, since compliance with this level makes the technological scheme of the mine susceptible to innovation. A model is proposed for studying the effectiveness of technological schemes of coal mines in assessing the level of potential and perception for innovation. Further representation of the structure of production relations in the form of a network model allows to reduce the cost of production, to increase productivity.

They contain the researches, which were conducted within the project GP – 501, financed by Ministry of Education and Science of Ukraine.

Key words: fuel and energy complex, optimal flow distribution, performance indicators, emergency, industry reserve, energy consumption.

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