**METHODICAL ASPECTS OF MODELING THE INTERCONNECTED WORK OF THE FUEL INDUSTRIES AT THE STUDY OF ENERGY SECURITY IN MODERN CONDITIONS**

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The relevance and significance of energy security problems studies in modern conditions of energy systems operation, during the period of negative trends growth in the energy sector, is undeniable and concerns two main aspects:

- the need for long-term, deficit-free provision of consumers with the required types of energy resources during the functioning of the energy sector under normal conditions;

- - the need to create conditions for providing consumers with energy resources when implementing threats to energy security.

Due to the impossibility of conducting full-scale experiments on operating fuel and energy systems, work related to the modeling of these systems, the development of specialized software and tools, the rational organization of a computational experiment to find ways to provide consumers with energy-free supplies when operating in normal contingency conditions.

The article presents an analysis of the existing methodological apparatus intended for modeling energy systems as part of the study of energy security used in domestic and foreign energy [2-4]. Methods and models for optimizing the modes of energy systems that make up the fuel and energy complex (FEC) are considered, taking into account the mutual influence of regime parameters. Similar models are used for systematic studies of the energy security problems country and its regions. The research is based on the methodology of modeling energy systems, which uses model systems with different hierarchies of construction (temporary, technological, territorial). The simulation is focused on the analysis and evaluation of the interconnected work all industry systems when realization to energy security threats with different impact forces (in the form of emergency situations - critical and emergency), taking into account changes in the operation of facilities critical for industries.

Similar work carried out in other teams are local or regional in nature with the study of individual aspects of the problem. Comprehensive studies to assess the possibilities of the interconnected work of all energy sectors and determine the consequences for consumers of energy resources due to emergencies in the work of one or several industries at the same time, due to the complexity of the problem with the methodological and mathematical aspects to its solution, are not sufficiently developed.

The main result presented in the article is a complex of energy systems models that take into account the intellectual nature of modern systems as much as possible and allow conducting energy security studies of the country and regions at a new qualitative level.

**References**

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