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ENERGY TECHNOLOGICAL COMBINING OF BULK PETROCHEMICAL ENTERPRISES*

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The petrochemical industry performing the processing of hydrocarbon material and being in the number of fuel and energy resources consumption leaders is characterized by a relatively low efficiency of the supplied energy use.

For the petrochemical energy industry enterprises the efficiency increase main direction one can consider to be the energy saving organization based on the principles of energy–technological integration.

The search for viable solutions on the organization of energy-technological complexes – is an extremely difficult task that requires carrying out a comprehensive analysis of the original system and the one being synthesized. The accepted decisions optimization can be reached only at the implementation of mathematical models formed depending on the set task class. The following tasks can be referred to the number of them:

- the search for superfine production facilities' operating regimes interrelated with energy supply systems;
- the industrial facility's efficient management with due consideration of its infrastructure at superimposition of indignations associated with material and energy imbalances;
- the minimization of specific material and energy consumption for production;
- the efficiency analysis of the synthesized object on a selected criterion in the dynamics of its development, etc.

An instrument for searching and selecting innovative solutions is the fully formed by now integrated methodology of complex industrial systems' analysis and synthesis within the framework of the present and projected technological complexes.

The development of a universal method combining isolated methods is a topical and many-sided task.

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ETHYLENE PRODUCTION ENERGY-TECHNOLOGICAL COMPLEX ORGANIZATION

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An energy saving upcoming trend at petrochemical enterprises is the organization of energy-technological complexes created on the base of secondary energy resources complex utilization systems. The ethylene production – is a large consumer of fuel and energy resources. At that, the considered production is characterized by a considerable output of secondary energy resources. Thus, in ethylene production there are favourable conditions for the energy-technological complex organization.

The first stage in construction of an energy-technological complex is the system's work efficiency estimation by means of a system analysis including the analysis of the considered object's relations structure, the analysis of thermal and thermodynamic effectiveness. The system analysis allows detecting the dependencies between the ethylene production scheme elements, defining the optimal sequence of the scheme computation, re-rating of the elements' efficiency, determining the value of technically usable energy, evaluating the energy saving reserves and revealing the optimum alternative for the energy-technological complex construction.