

"Modern conception, methodological basics and means of sustainable progress Ukrainian Energy sector development".

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Results

There were realized the further development of integrated resource planning theory for solving the hybrid system building tasks, mathematical models and decision making methods. Criteria and main strategic directions of reforms in power engineering, with the consideration of current infrastructure, and integration the distributed generation into existing energy supply systems, were determined. It were developed different methods for assortment the technical decisions, which allow to perform an optimal adaptation of existing systems, so they could get energy from different power sources, subject to the set of technical requirements and capability of establishment micro power centers, for energy demand assurance of regions and plants.

There was carried into practice the analysis and then drafted the conception of power engineering development, which perform the utilization of intelligent networks, modern informational technologies and mathematical tools, as well as effective management of distributed energy sources.

In course of research was developed a mathematical and methodological tools, and provided an evaluation of the distributed generation's potential, subject to economical and climate region's features. There were performed a monitoring and controlling system. There was elaborated a guide how to analyze and choose a potential energy sources, for the energy demand satisfaction. The task of development micro power centers was realized by way of example of implementing the distributed generation fragments in institution's power plant. The optimization of power supply system with implementation of distributed generation, were made under holistic approach. Also was represented an analysis of modern information technologies. In accordance with the determined main principles was offered modeling of consumer's electrical loads and generation sources. There were developed a controlling methods for integrated systems. The modeling expected an implementation of appraisal and reliability increasing of distributed energy networks in subject to generation sources and modern switchgear. In terms of draft the "Ukrains' manoeuvring power potential" concept was developed a methodology of optimal decision making. For the optimal satisfaction of manoeuvring power of Ukraine was elaborated, proved and tested the mathematical model, which are perform, analyze and compare alternative variants of sustainable development of Ukrainian power engineering in this means. On the basis of Smart-technologies was offered an implementation of the conception and innovation project of the supply systems.