

Justifying the expansion of intersystem power transmission lines while forming the efficient long-term generating capacity structure of the UES of Russia.

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This article addresses the optimization of transmission capacity of intersystem power lines within the framework of developing an efficient long-term structure of generating capacities. Various approaches to incorporating the development of intersystem transmission lines into the optimization model of an efficient structure are explored. A methodology for justifying the expansion of the backbone power grid based on the distribution of power flows across interzonal cross-sections is proposed with account of the reliability factors. Relevant calculations have been performed while forming the efficient long-term generating capacity structure of Russia's Unified Energy System for the year 2050.

Key words: efficient long-term structure of generating capacities, expansion of power grid, master plan, power industry development planning.