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## RESERVES OF GENERATING CAPACITIES FOR PERSPECTIVE PLANNING OF DEVELOPMENT OF THE UNIFIED ENERGY SYSTEM OF RUSSIA

The determination of reserves of generating capacity is one of the main tasks in planning the future development of electric power systems (EPS) [1]. In modern conditions of development of the Russian electric power industry, there are many problems that affect the rational level of reservation of generating capacities. Among the main ones, the following can be distinguished: high depreciation of fixed energy funds, failure to fulfill plans for repairing power equipment, insufficient level of integration of diagnostic tools for power equipment [2]. Also, factors such as the development of renewable energy sources [3], the development of distributed generation and the emergence of active consumers influence the level of reservation of generating capacity in modern conditions. In addition, in the legislative framework of the Russian Federation, requirements for reserve levels of generating capacity in the Unified Energy System of Russia are not clearly formulated, and in some documents contradict each other.

The article analyzes the current changes in the Russian power industry regarding the level of reservation of generating capacity in the long-term planning for the development of the Unified Energy System of Russia. The article proposes a methodology for determining the necessary reserves of generating capacity in the power system, based on the assessment of the adequacy of EPSs, taking into account modern features of the development of EPSs [4,5]. In addition to taking into account all the factors affecting the adequacy of the EPS, when determining the level of redundancy of generating capacity, it is important to justify the criterion of efficiency of reservation of generating capacity. This criterion is directly related to the efficiency of the economy. As such a criterion, an indicator of adequacy is adopted – the probability of a deficit-free operation [6], the normative values of which are estimated for modern and perspective conditions for the development of the Russian economy. Based on the presented methodology, the adequacy of the planned reserves of generating capacity in the UES of Russia was assessed and the values of power reserves were adjusted in accordance with the accepted criterion.

### References

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**Основные авторы:** Mr KRUPENEV, Dmitry (ESI SB RAS); Mr BOYARKIN, Denis; Mr YAKUBOVSKY, Dmitrii; Prof. KOVALEV, Gennady; Mrs LEBEDEVA, Ludmila

**Докладчик:** Mr KRUPENEV, Dmitry (ESI SB RAS)

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