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THE INFLUENCE OF STOCHASTIC ENERGY CHARACTER IN DISTRIBUTED GENERATION SYSTEMS ON THEIR STABILITY

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Abstract

Formulas for calculating the process of energy change, taking into account its random nature, in the space of two and three variables in distributed systems are given. A graph of a discrete mapping of the energy change process and a Lameri diagram are presented to investigate the stability of this process. It is noted that due to the stochastic nature of the energy change process, the system can leave the steady-state zone. The method of finding the differential of a random process with the Wiener component according to the Ito formula is presented. The technique of applying the law of the iterated logarithm to the Wiener process is presented, and graphs of its typical trajectories are shown both at the entire observation interval and around zero. The necessity of application in distributed generation systems the energy storage for ensuring their stable operation is substantiated. References 11, figures 8.

Key words: distributed generation systems, Heisenberg's uncertainty principle, storage battery, stochastic processes.

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