

Intelligent control of isolated power system operating conditions.

Andranovich B., Gerasimov A. S., Koshcheev L. A., Kritskiy V. A., Lisitsyn A. A.

The isolated operation of local power systems, which are relatively small in terms of capacity, has a number of features associated, first of all, with the processes of regulation of frequency and power flows. There are also peculiarities in the solutions of a task of ensuring of power system's reliability and survivability in case of various disturbances in its operation.

Fluctuation in operating parameters in such a power system appearing due to the rated and non-rated emergency imbalances of active and reactive power in the conditions of the absence of mutual assistance from adjacent power systems occur much more intensively. Accordingly, special requirements are imposed on the systems of regime and emergency control functioning in an isolated power system related to the need to ensure that the parameters of the electrical mode are within the permissible margins. In addition, in such power systems there is an acute problem of ensuring a sufficient level of reserves for primary and secondary frequency control.

Key words: Power system, Emergency control, Frequency control, Isolated operation, Gas turbine, Protection.