

Improving power system stability by modifying active power control loops of turbo-generators.

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Recently persistent fluctuations of generated active power were observed at one of the power plants in Russia, which were accompanied by significant oscillations of the power system frequency. Initial study of the problem showed that these processes were caused by the primary frequency control logic implemented in the generator's control systems.

The cause of these oscillations was identified. To avoid such oscillations the control logic of the generator's control systems was corrected accordingly.

The modified control logic, whilst ensuring compliance with the national primary frequency control regulations, enables frequency stability in the power system, comparable to the plant energy-wise, which is demonstrated by simulation and field test results.

Keywords: speed governor, active power control, turbine, primary frequency control.