

Analysis of frequency and power oscillations in isolated power systems containing hydroelectric power plants.

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The power system model proposed in this article allows approximate transient process simulation in isolated power systems and reproduces the emergence of sustained oscillations caused by the operation of the hydroelectric unit control system. The model's simplicity allows the use of theoretical stability criterion. The influence of electrical power feedback on control stability is considered. An estimate is given of the share of the hydroelectric unit power in the total power of the energy system, at which there is a risk of violating control stability criteria.

Key words: frequency, speed regulator, frequency control, technologically isolated power system, stability.