

Optimization of the electric power system operation based on application of battery energy storage system.

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The main purpose of this study is to substantiate the possibility of using battery energy storage to increase power system transient stability. A simplified model of the Boguchanskaya hydropower plant (HPP) region power system has been created. An analysis of the transient stability of the Boguchanskaya HPP region has been carried out. An algorithm for the operation of battery energy storage system (BESS) to increase transient stability level has been developed. Assessment of the effectiveness of the proposed solutions has been carried out, and the justification for carrying out review activities has been substantiated.

Key words: transient stability, battery energy storage systems, synchronous generator, automatic excitation control, hydro power plant.