Influence of the FACTS devices on the power system stability indices

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The article is devoted to the analysis of static and transient stability of power transmission with Flexible Alternative Current Transmission System (FACTS) devices. Also, the development of mathematical models for FACTS devices for power system operation and stability analyses is considered. Examples of such device are the compensating device based on voltage-sourced converter (STATCOM), static synchronous series compensator (PSTATCOM) and the unified power flow controller (UPFC). The proposed simulation method of FACTS devices is suitable for calculation of transient process, in particular, for assessment on the level of transient stability, and also for determination of oscillation damping indexes of the small-disturbed motion.

Keywords: power system, dynamic stability, transient stability, static synchronous compensator, unified power flow controller.