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### **Power-angle curve analysis of power transmission lines with FACTS devices.**

The article is devoted to the development of a methodology for calculating power-angle curve of a power transmission line with different modern compensating devices and methods of these devices accounting for calculating complex energy systems modes and stability. Examples of such devices are: static thyristor compensators and controllable shunt reactors (STC / CSR), a compensating device based on a voltage source converter (STATCOM), a unified power flow controller (UPFC). The article shows the need to take into account the voltage level of the terminals and the current limitation of the STATCOM (UPFC) converter for power-angle curve constructing. The proposed methodology for modeling FACTS devices is suitable for transient processes numerical computation, in particular, the estimation of the effect on the transient stability level of parallel operation under system disturbances.

*Keywords: power system, power-angle curve, static synchronous compensator, unified power flow controller.*

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