A Literature Review on the Unified Power Flow Controller UPFC

Abstract

Power electronic controllers for a flexible ac transmission system (FACTS) can offer a greater control of power flow, secure loading and damping of power system oscillations. A unified power flow controller (UPFC) is a one of FACTS elements that can provide VAR compensation, line impedance control and phase angle shifting. The UPFC consist of two fully controlled inverters, series inverter is connected in series with the transmission line by series transformer, whereas parallel inverter is connected in parallel with the transmission line by parallel transformer. The real and reactive power flow in the transmission line can be controlled by changing the magnitude and phase angle of the injected voltage produced by the series inverter. The basic function of the parallel inverter is to supply the real power demanded by series inverter through the common dc link. The parallel inverter can also generate or absorb controllable reactive power. This paper offers and discusses most papers that used a UPFC to improving the active and reactive power flow of the power systems.


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**Index Terms**

Computer Science  
Circuits and Systems

**Keywords**

FACTS Devices, UPFC, Voltage Stability, Power Flow Improvement.