Abstract

Modeling, simulation and comparison of the performance of IPFC (series-series) and UPFC (series-shunt) FACTS controllers for voltage stability enhancement and improvement of power (real and reactive power) transfer capability have been presented in this paper. A simple transmission line system is modeled in MATLAB/SIMULINK software. Initially, basic transmission line system model is simulated. After simulating this uncompensated model, power flow results are obtained. The power profile has been studied for an uncompensated system. Results obtained for the uncompensated system are then compared with the results obtained after compensating the system using IPFC (series-series) and UPFC (series-shunt) FACTS devices. The simulation results demonstrate performance of the system with the inclusion of the above (IPFC and UPFC) FACTS devices in improving the voltage stability and power profile. All simulations have been carried out in MATLAB/SIMULINK environment.

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**Index Terms**

Computer Science  Control Systems

**Keywords**

FACTS  voltage profile  IPFC  UPFC  voltage security  PSPICE