**ABSTRACT**

Modeling and simulation of Fixed Capacitor Thyristor Controlled Reactor (FC-TCR), Static synchronous compensator (STATCOM), Thyristor controlled Series Capacitor (TCSC), Static synchronous Series Compensator (SSSC) and Unified Power Flow Controller (UPFC) for power system stability enhancement and improvement of power transfer capability have been presented in this paper.

The Power electronic based FACTS devices can be added to the power transmission and distribution systems at strategic locations to improve system performance. The FACTS controllers will control series impedance, shunt impedance current, voltage and phase angle. First, power flow results are obtained and then power (real and reactive power) profiles have been studied for an uncompensated system and then compared with the results obtained after compensating the system using the above mentioned FACTS devices.

The simulation results demonstrate the performance of the system for each of the FACTS devices in improving the power profile and there by voltage stability of the same. The simulation results demonstrate the performance of the system for each of the FACTS devices in improving the power profile and thereby voltage stability of the same. All simulations have been carried out in MATLAB/SIMULINK environment.

**KEYWORDS:** FACTS controller, real and reactive power, FC-TCR, STATCOM, SSSC, TCSC, UPFC, VSC, Voltage stability.