

DIGITAL SIMULATION OF FACTS CONTROLLERS

R. MAHALAKSHMI & K. S. R. ANJANEYULU

Abstract

The operation of an ac power transmission line is generally constrained by limitations of one or more network parameters. As a result, the power line is unable to direct power flow among generating stations. Therefore, other parallel transmission lines that have an adequate capability of carrying additional amounts of power may not be able to supply the power demand. Flexible ac transmission systems (Facts) is a new emerging technology and its principal role is to enhance controllability and power transfer capability in ac systems. FACTS technology uses switching power electronics to control power flow in the range of a few hundreds of megawatts. This paper deals with the simulation of various FACTS controllers using Simulation Program with Integrated Circuit Emphasis (PSPICE). FACTS controllers can control series impedance, shunt impedance, current, voltage and phase angle. In the present work, series compensator, Unified Power Flow Controller, and Power Factor Corrector were simulated. Excellent reactive power control was obtained by using Voltage Source Inverter with different capacitor voltage values.

Keywords: FACTS Controllers, Power Factor Corrector, and PSPICE