

A COMPARISON ON PERFORMANCE OF TCSC/SSSC FOR A RADIAL SYSTEM

JOSEPHKUTTY JACOB & SHINY PAUL

Cochin University of Science & Technology Cochin, Kerala, India

ABSTRACT

Power flow control in electric power networks is becoming one of the crucial factors of electric power system development. Because of growing energy demand, optimization of power systems operation and deregulation the power transmission inside is expected to increase in the future. In many countries, the environmental problems and increase in public opposition place restrictions on building of new transmission lines. The consequence may be the need for more efficient use of the existing transmission facilities, in certain situations beyond the limits considered in the original planning phase. In such a situation the need for effective dynamic power flow control is evident. The solution might be FACTS (Flexible AC Transmission System) technology based on power electronic equipment. As one of the most attractive FACTS technologies, TCSC (Thyristor Controlled series Capacitor) has won wide attention in the world. Static Synchronous Series Compensator (SSSC) is another device for variable series compensation of transmission lines.

This paper deals with comparative study of performance of TCSC and SSSC for a long radial transmission line connecting a generator source to big load centre. Appropriate shunt compensation also designed for the system. Since a major concern in such system is regulation of the load point voltage, TCSC/SSSC along with shunt compensating devices, has been designed to aid in regulating this voltage. Detailed simulation using PSCAD/EMTDC software has been done to assess efficacy of the design.

KEYWORDS: Radial System