International J. of Engg. Research & Indu. Appls. (IJERIA).
ISSN 0974-1518, Vol.3, No. II (May 2010), pp 385-398

MONITORING AND CONTROL OF POWER FLOW IN TRANSMISSION LINES USING A FUZZY BASED GLOBAL CONTROLLER IN UPFC INSTALLED POWER SYSTEM

K.V. PAVAN KUMAR, B.V. SANKER RAM AND G. TULASIRAM DAS

Abstract

In the area of power systems the introduction of power electronic based Flexible Alternating Current Transmission Systems (FACTS) devices bring some flexibility in controlling the power flow without changing the transmission line parameters physically. Unified Power Flow Controller (UPFC) is one of the most popular FACTS device, which is used in the power system environment to control the power flow in a desired manner without deviating the specified rating of bus voltage. During this process the power flow in the surrounding transmission lines will be affected and in some cases it may reach the rated levels also. To monitor and control such type of situation, a Fuzzy Logic based Global Controller (FLGC) along with Fuzzy Logic Controlled UPFC (FL-UPFC) is proposed in this paper. The FL-UPFC and FLGC are simulated on Western System Coordinating Council (WSCC) 9 bus system by using MATLAB/ SIMULINK software.

Keywords: FACTS, FL-UPFC, Loading of Transmission Line, FLGC and SIMULINK.