

ABSTRACT

Power system stabilizers (PSSs) are added to excitation system or control loop of the generating unit to enhance the damping during frequency oscillations.

This research presents a fuzzy logic controller as power system stabilizer for stability enhancement of a single machine and multi-machine power system.

In order to accomplish the stability enhancement, deviation of speed ($\Delta\omega$) and acceleration ($\Delta\dot{\omega}$) of the rotor of synchronous generator were taken as the input to the fuzzy logic controller. These variables produce significant effects on damping of the generator shaft mechanical oscillations. The simulations were tested under different operating conditions.

The responses of stabilizing signal were computed using fuzzy controller. The performance of the fuzzy power system stabilizer is compared with the conventional proportional-Integral-Derivative controller (PID controller). It is found that the results of fuzzy PD+I controller are quite encouraging and satisfactory.