World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:8, No:05, 2014

Improvement of Transient Voltage Response Using PSS-SVC Coordination Based on ANFIS-Algorithm in a Three-Bus Power System

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Abstract : Transient voltage response appears in power system operation when an additional loading is forced to load bus of power systems. In this research, improvement of transient voltage response is done by using power system stabilizer-static var compensator (PSS-SVC) based on adaptive neuro-fuzzy inference system (ANFIS)-algorithm. The main function of the PSS is to add damping component to damp rotor oscillation through automatic voltage regulator (AVR) and excitation system. Learning process of the ANFIS is done by using off-line method where data learning that is used to train the ANFIS model are obtained by simulating the PSS-SVC conventional. The ANFIS model uses 7 Gaussian membership functions at two inputs and 49 rules at an output. Then, the ANFIS-PSS and ANFIS-SVC models are applied to power systems. Simulation result shows that the response of transient voltage is improved with settling time at the time of 4.25 s.

Keywords : improvement, transient voltage, PSS-SVC, ANFIS, settling time
Conference Title : ICEET 2014 : International Conference on Electrical Engineering and Technology
Conference Location : Tokyo, Japan
Conference Dates : May 29-30, 2014