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Transient Stability Improvement in Multi-Machine System Using Power System Stabilizer (PSS) and Static Var Compensator (SVC)

Authors : Khoshnaw Khalid Hama Saleh, Ergun Ercelebi

Abstract : Increasingly complex modern power systems require stability, especially for transient and small disturbances. Transient stability plays a major role in stability during fault and large disturbance. This paper compares a power system stabilizer (PSS) and static Var compensator (SVC) to improve damping oscillation and enhance transient stability. The effectiveness of a PSS connected to the exciter and/or governor in damping electromechanical oscillations of isolated synchronous generator was tested. The SVC device is a member of the shunt FACTS (flexible alternating current transmission system) family, utilized in power transmission systems. The designed model was tested with a multi-machine system consisting of four machines six bus, using MATLAB/SIMULINK software. The results obtained indicate that SVC solutions are better than PSS.

Keywords : FACTS, MATLAB/SIMULINK, multi-machine system, PSS, SVC, transient stability
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