Abstract

This paper presents the MATLAB simulink dynamic model of the load frequency control (LFC) of a realistic two area power system having diverse sources of power generation. The DC link is used in parallel with AC tie line for the interconnection of power system. The power system simulation is done using MATLAB simulink and control problem is solved using MATLAB programming. An optimal output feedback controller with pragmatic viewpoint is presented. Optimal Gain settings of the output feedback controller with and without DC tie line are obtained following a step load disturbance in either area by minimizing the quadratic performance index. The performance of the controller is compared for the power system with and without DC tie line. Simulation results show that the system with AC-DC parallel tie line achieves better performance in the presence of plant parameter changes and system nonlinearities. Further, results show that the output feedback method is the most rational technique with the good dynamic response when the power demands change.
- Jan Machowski, Jan Machowski and James R. Bumby. Power System Dynamics Stability and Control. 2nd ed. Chichester, West Sussex, United Kingdom, John Wiley and Sons Ltd; 2008
- Working group on prime mover and energy supply models for system dynamic

Index Terms
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