Improving Load Frequency Control of Multi-Area Power System by Considering Uncertainty by Using Optimized Type 2 Fuzzy Pid Controller with the Harmony Search Algorithm

Authors : Mehrdad Mahmudizad, Roya Ahmadi Ahangar

Abstract : This paper presents the method of designing the type 2 fuzzy PID controllers in order to solve the problem of Load Frequency Control (LFC). The Harmony Search (HS) algorithm is used to regulate the measurement factors and the effect of uncertainty of membership functions of Interval Type 2 Fuzzy Proportional Integral Differential (IT2FPID) controllers in order to reduce the frequency deviation resulted from the load oscillations. The simulation results implicitly show that the performance of the proposed IT2FPID LFC in terms of error, settling time and resistance against different load oscillations is more appropriate and preferred than PID and Type 1 Fuzzy Proportional Integral Differential (T1FPID) controllers.
Keywords : load frequency control, fuzzy-pid controller, type 2 fuzzy system, harmony search algorithm
Conference Title : ICEET 2016 : International Conference on Electrical Engineering and Technology
Conference Location : London, United Kingdom
Conference Dates : August 25-26, 2016