

**International Energy Journal, Volume 9, Issue 4, December
2008**

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[Home](#) > [Volume 9, Issue 4, December 2008](#) > **Hossain**

Fuzzy Based Integral Controller for an Automatic Generation Control in Multi-Area Power System

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Abstract

In the present work, the intelligent load frequency controllers have been developed to regulate the power output and system frequency by controlling the speed of the generator with the help of fuel rack position control. This paper presents the implementation of fuzzy based integral controller (FIC) for controlling frequency and tie line power of in multi area power system. A comprehensive mathematical model of two area interconnected power system is developed. In the design of this controller, the conventional integral controller output is fuzzified by the fuzzy logic controller (FLC). The aim of the proposed controller is to restore the frequency in a very smooth way to its nominal value in the shortest possible time whenever there is any change in the load demand, etc. The action of this controller provides a satisfactory balance between frequency overshoot and transient oscillations with zero steady-state error. It is found that the proposed controller exhibits satisfactorily well dynamic performance and overcome all possible drawbacks associated with conventional integral controller (CIC).

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