

## عنوان مقاله:

AGC of a realistic Power System in Coordination with Optimal design of Redox Flow Battery Using Multi Objectives Cost Function

## محل انتشار:

سومین همایش بین المللی نوآوری در مهندسی برق و مهندسی رایانه (سال: 1398)

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## نویسندگان:

Mina Heshmati - PHD student of Electrical Engineering University of Zanjan Zanjan, Iran

Reza Noroozian - Faculty of Electrical Engineering University of Zanjan Zanjan, Iran

Morteza Akhbari - Electricity Distribution Company Zanjan, Iran

## خلاصه مقاله:

This paper deals with automatic generation control modeling of a realistic multi area power system equipped with Redox Flow Batteries. In order to get an accurate insight, all of nonlinearity effects and physical constraints in load frequency studies such as generation rate constraint, governor dead band, time delay, boiler dynamics and reheat turbine dynamics of a thermal power system has been considered. Firefly optimization algorithm with multi objectives cost function based on ITSE criteria for both of controller input signal to minimize the area control error and output signal to reduce the size of actuator and economic aspects, settling time to have a faster response and a function to increase the minimum damping ratio among all of eigenvalues, has been used to optimize the integral control gains of each area and proportional control gains of Redox Flow Batteries. Transfer function of nonlinearities such as governor dead band and time delay has been modeled to demonstrate the exact amount of minimum damping ratio rather than the nonlinear simple blocks. Simulation results confirms the superiority of the proposed scheme based on optimal storage devices under different step and sinusoidal load perturbations and uncertainty in dynamic parameters of power system.

## کلمات کلیدی:

.AGC, redox flow battery, firefly algorithm, multi objectives cost function, GRC, GDB, time delay

## لینک ثابت مقاله در پایگاه سیویلیکا:

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