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عنوان مقاله:

Decentralized Disturbance Rejection Control of Multi-Area Power Systems Using Generalized Extended State Observer

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خلاصه مقاله:

In this paper, generalized extended state observer is implemented to the load-frequency control of a multi-area power system. By using this observer, there is no need to havean accurate dynamic model of the system and thus, leads to a more robust performance against the uncertainties of the systemparameters and disturbances in comparison with conventional load-frequency control methods. Moreover, the higher orderdisturbances rather than just step disturbances can be rejected by the proposed method, because of estimating the both disturbance and its derivative. A generalized disturbance signalis defined for each area. It consists of unmodeled dynamics of the system, external disturbances, and the interactions of theother areas. In the proposed control strategy, the generalized disturbance is estimated using local input and output data by a local state observer. Then, the estimation of generalized disturbance is used in a local state feedback controller to reject it and track the related references. The simulation results showthe effectiveness of the proposed method

کلمات کلیدی:

decentralized control, disturbance rejection, generalized extended state observer, large-scale systems,multi-area power systems

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