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Protection and Control of Modern Power Systems

RETRACTION NOTE Open Access

Retraction Note: An improved under frequency load shedding strategy based on dynamic power flow tracing

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1 Retraction

The authors are retracting this article [1]. After publication we became aware of the following errors in the methodology:

(1) Our article states: "If the distributed power and new energy source are not considered, the output electromagnetic power of any generator can be represented by its load and power transmission loss". However, formula (9) is wrong when considering the spinning reserve capacity and the adjustment of the balancing machine in the power system.

(2) In our article formula (16) and formula (20) use the time integral of load change to determine the load frequency contribution factor, and these two formulae only consider the voltage characteristics of the load. In the simulations, the constant impedance model or the constant impedance + constant power combination model are applied, so the load change is caused by the change of the node voltage when the system frequency drops. Therefore, in our article, formula (16) and formula (20) used to determine the effect of load power on system frequency are wrong. In addition, if the load is all constant power model, then the load power will not change when the frequency drops, and the load frequency contribution factor cannot be obtained correspondingly.

In summary, the actual power system will quickly operate the spinning reserve capacity in the event of failure and its load composition varied, so the simulation results obtained in our article can only be established under special conditions. In most actual power systems, our proposed methodology is invalid and the simulation results are wrong.

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Reference

1. Li, S., Liao, Q., Liu, D., & Cen, B. (2017). An improved under frequency load shedding strategy based on dynamic power flow tracing. *Protection and Control of Modern Power Systems, 2*, 4. 10.1186/s41601-016-0031-z.

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