عنوان مقاله:

An Advanced State Estimation Method Using Virtual Meters

نویسنده:

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خلاصه مقاله:

Power system state estimation is a central component in energy management systems of power system. The goal of state estimation is to determine the system status and power flow of transmission lines. This paper presents an advanced state estimation algorithm based on weighted least square (WLS) criteria by introducing virtual meters. For each bus of network, except slack bus, a virtual meter is considered, using the concept of KCL law. Regarding virtual meter, an improved state estimation algorithm is obtained with higher accuracy and lower computation burden. In the case study, at first, a simple ۶-bus test system is presented and the proposed state estimation algorithm is followed step by step. Then, in order to evaluate the effectiveness and applicability of algorithm, IEEE ۳۰-bus and IEEE ۱۱۸-bus test systems are also taken into consideration. The obtained results verify the usefulness of the proposed method in large size power systems including thousands of buses.

کلمات کلیدی:

خطای اندازه گیری, اندازه گیری میتر(اندازه گیر), تخمین حالت, اندازه گیری مجازی, زاویه فاز ولتاژ

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