

# **Distributed power system state estimation considering stopping criterion**

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**Abstract:** Power System State Estimation (PSSE) has been a research area of interest for power engineers for a long period of time. Due to the intermittent nature of renewable energy sources, which are applied in the power network more than before, the importance of state estimation has been increased as well. Centralized state estimation due to the complexity of new networks and growing size of power network will face problems such as communication bottleneck in real-time analyzing of the system or reliability issues. Distributed state estimation is a solution for the mentioned issues. There are different implementation methods introduced for it. Here different approaches to distributed PSSE (DPSSE) problem are examined, according to most important factors like iteration number, convergence rate, needed data to be transferred to/from each area and etc. Next, a distributed stopping criterion for the methods is proposed and discussed, and above-mentioned factors are obtained as well. Finally, a comparison between the total efficiency of all applied methods is done.