

Synchrophasor measurements-based on-line power system steady-state security indices ô part I: Methodology

Hossam Eldin Abdallah Talaat ,Hamed A. Ibrahim ; Bassam A. Hemade

Abstract

in this paper, a set of performance indices are developed to identify the credible disturbances (contingencies). This set of indices is based on bus voltage profile and thermal transfer capacity of transmission lines. The proposed indices have utilized the benefits of Synchrophasor measurements in all cases that have been presented. The proposed indices ranked lines and generators outage according to the number of affected equipment and expected severity of contingency. The proposed indices are examined on a 6-bus sample system and IEEE 14-bus system. MATLAB environment is used for system simulation. The given results ensure the robustness and correctness of the developed indices under various contingencies, operating conditions, and different network size.

International Middle-East Power Systems Conference, (MEPCON 2016) 2016, December