

Evaluation of Transfer Capability Considering Uncertainties of System Operating Condition and System Cascading Collapse

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Abstract : Over the past few decades, the power system industry in many developing and developed countries has gone through a restructuring process of the industry where they are moving towards a deregulated power industry. This situation will lead to competition among the generation and distribution companies to achieve a certain objective which is to provide quality and efficient production of electric energy, which will reduce the price of electricity. Therefore it is important to obtain an accurate value of the Available Transfer Capability (ATC) and Transmission Reliability Margin (TRM) in order to ensure the effective power transfer between areas during the occurrence of uncertainties in the system. In this paper, the TRM and ATC is determined by taking into consideration the uncertainties of the system operating condition and system cascading collapse by applying the bootstrap technique. A case study of the IEEE RTS-79 is employed to verify the robustness of the technique proposed in the determination of TRM and ATC.

Keywords : available transfer capability, bootstrap technique, cascading collapse, transmission reliability margin

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