Estimating the loading limit taking into account voltage collapse areas

J. Barquín Gil; T. Gómez San Román; F.L. Pagola y de las Heras

Abstract-

This paper addresses the computation of the margin to the maximun power transfer limit. A non-linear \\"sensitivity\\" theory is presented and used to propose a new algorithm for this computation. The proposed algorithm is computationally efficient, allow a great variety of power system models, including reactive power output limits, and the optative consideration of heuristic knowledge about voltage collapse areas. The algorithm is tested in a 6-machines test system, a proposed benchmark system for voltage instability studies.

Index Terms- Maximun power transfer, Voltage collapse, Margins

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Citation:
Barquín, J.; Gómez, T.; Pagola, F.L. "Estimating the loading limit taking into account voltage collapse areas", IEEE Transactions on Power Systems, vol.10, no.4, pp.1952-1962, November, 1995.