

A novel online line switching methodology for increasing load margins to static stability limit of a look-ahead power system is developed. A design goal of the methodology is to balance speed (for online computation) and effectiveness (for quality of line switching solutions). Instead of dealing with the combinatorial nature of line switching problem, the proposed methodology employs the strategy of screening, ranking and identifying to find a set of high-quality solutions. The proposed methodology ensures the satisfaction of operational and engineering constraints of (look-ahead) post-switching power system. The proposed methodology also determines multiple solutions of line switching for operators to choose a desired one. The effectiveness of the online line switching methodology is evaluated on the IEEE 118-bus and a 1648-bus power systems with very promising results.