

عنوان مقاله:

A Study of Optimal Location of FACTS Devices Considering Total Fuel cost and Power losses

محل انتشار:

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خلاصه مقاله:

This paper investigates a method to optimally locate FACTS Controllers in electrical power system and comparisons between them. In other words, the main purpose is to provide a fast and accurate method to find the best place to install of FACTS devices and compare their efficiency on total fuel cost and power losses in electrical power system. The proposed algorithm is based on the power injection model for FACTS incorporating Optimal Power Flow (OPF) in steady-state analysis. In this paper, the considered objective functions are to minimize the total fuel cost, power losses. The optimization problem is modeled in General Algebraic Modeling System (GAMS) software and uses nonlinear programming (NLP) and mixed-integer nonlinear programming (MINLP) to solve the optimal location and setting of FACTS incorporated in the optimal power-flow problem considering these objective functions. Simulation results are presented for the IEEE 14 and 118-bus test systems. Installing of UPFC in power system can have a greater impact in reducing fuel costs and power losses. Furthermore, the computation times are significantly lower than that of other studies compared to the proposed approach

کلمات کلیدی:

objective function, FACTS, fuel cost function, power losses, power injection

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