

عنوان مقاله:

Optimal placement and sizing of capacitors in harmonic-containing distribution networks

محل انتشار:

همایش ملی تولید و بهره برداری از انرژی های نو سازگار با محیط زیست (سال: 1394)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

This paper proposes a novel approach for optimal quantity, placement, and sizing of capacitors in a distribution network containing harmonic as a consequence of high penetration of non-linear loads as well as DGs. The cost-based objective function comprises capacitors costs and also power losses net savings. The implemented methodology is compliant with IEEE-519 standard regarding power quality in distribution systems. Since consideration of harmonics in a distribution system adds to complexity of the problem and to avoid related massive numerical calculations, the harmonic power flow calculations are performed in DIgSILENT software. In the next step of optimization process, the best solution is determined utilizing genetic algorithm (GA). The proposed methodology is applied to IEEE 33-bus test distribution network with promising results.

کلمات کلیدی:

(capacitor placement, Harmonics, Non-linear Loads, Optimization, Genetic Algorithm (GA)

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