

Optimal Design of Substation Grounding Grid Based on Genetic Algorithm Technique

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Abstract : With the incessant increase of power systems capacity and voltage grade, the safety of grounding grid becomes more and more prominent. In this paper, the designing substation grounding grid is presented by means of genetic algorithm (GA). This approach purposes to control the grounding cost of the power system with the aid of controlling grounding rod number and conductor lengths under the same safety limitations. The proposed technique is used for the design of the substation grounding grid in Khalda Petroleum Company "El-Qasr" power plant and the design was simulated by using CYMGRD software for results verification. The result of the design is highly complying with IEEE 80-2000 standard requirements.

Keywords : genetic algorithm, optimum grounding grid design, power system analysis, power system protection, single layer model, substation

Conference Title : ICEPE 2016 : International Conference on Energy and Power Engineering

Conference Location : London, United Kingdom

Conference Dates : July 28-29, 2016