

عنوان مقاله:

A Novel Optimal Design for Electrical Transmission Pylons Considering Effects of Electromagnetic Fields on Human Body

محل انتشار:

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خلاصه مقاله:

This paper investigates relation and influence between electromagnetic fields generated by high voltage transmission lines and human health. A novel pylon with optimal phase arrangement through possible configuration is presented by optimizing a multi-objective cost function consists of the electric field, magnetic field, and the segments cost. For comparison between current pylons and the proposed pylon, the human model is placed below high voltage overhead lines and then electromagnetic fields and current density is simulated. Electromagnetic fields from overhead lines are calculated by using PLS-CADD and PLS-TOWER software based on Maxwell's method. The human body is modeled by the Finite Element Method (FEM) in MATLAB. Results show that the new pylon decreases electromagnetic fields distribution on the human body and this pylon also mitigates the right-of-way width by its special position of phase conductors.

کلمات کلیدی:

Electric and Magnetic Fields, Optimization, 400 kV Transmission lines, Human Health, Phase Arrangement., Electric and Magnetic Fields, Optimization, 400 kV Transmission lines, Human Health, Phase Arrangement

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