

特高压输电

特高压线路地线布置方式对地线电能损耗及潜供电流的影响

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摘要:

由于导线的电磁耦合作用、线路的不完全平衡换位和三相负荷的不对称性, 2根架空地线之间或地线与大地之间会形成感应电流回路, 从而在地线上产生电能损耗。不同的地线布置方式感应电流不同, 电能损耗差别很大; 架空地线的布置方式对线路潜供电流会产生一定的影响, 这也决定了在模拟计算时建立仿真模型的难易。文中利用EMTP软件对特高压同塔双回输电线路不同布置方式下地线的感应电压、电流及线路潜供电流进行了仿真计算, 根据计算结果, 从减小电能损耗和潜供电流的角度考虑, 可选出较佳的地线布置方式; 在保证潜供电流计算精度的前提下, 可选择易于建模的地线布置方式。

关键词: 特高压 架空地线 感应电压 感应电流 电能损耗 潜供电流

Effect of UHV Ground Wire Disposition on Its Electric Energy Loss and Second Arc Current

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Abstract:

Owing to electromagnetic coupling of conductors, as well as incomplete balanceable transposition of transmission lines and asymmetry of three phase load, it forms a circuit of inductive current between the two ground wires or ground wires and the earth, so it produces electric energy loss. The inductive currents are different because of different ground wire disposition, hence the electric energy loss has great disparity. Ground wire disposition has some impacts on second arc current of transmission lines, and it also can influence simulation model while analog computating. Combining the UHV same tower double circuit transmission, using electromagnetic transients program EMTP to calculate inductive current of ground wire and second arc current of transmission lines. In this paper, it gives the preferable ground wire disposition mode based on the calculation results, which gives attention to reducing ground wire electric energy loss and second arc current of transmission lines. In addition, it can select the ground wire disposition mode which is easy to modeling while guaranteeing calculation accuracy of second arc current.

Keywords: UHV ground wire induced voltage induced current electric energy loss second arc current

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