

自动化

基于电力光缆线路资源共享度的网络优化方法

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摘要:

电力光传输网所依托的底层光缆有普通光缆和电力线特种光缆2种类型。输电线路与电力特种光缆线路配比指标是影响电力光传输网络建设成本的一个重要因素。在充分考虑电力光缆网建设的特殊性和成本结构的差异性基础上,设计了资源共享度评价指标,提出考虑容量需求关系与光缆共享的环网光缆路由优化方法,并以S省电力公司骨干环网为算例,比较了不同情况下500 kV站点的光缆网优化方案。

关键词: 光缆路由 旅行商模型 资源共享度 网络优化

A Network Optimization Method Based on Resource Sharing of Power Optical Cable Lines

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Abstract:

There are two kinds of optical cables, i.e., the ordinary optical cable and the special power optical cable such as optical fiber composite overhead ground wire (OPGW) and all-dielectric self-supporting optical cable (ADSS) optical cable, used in the underlying structure of power optical cable networks. The index of configuration ratio of special power optical cable line to transmission line is an important factor impacting the construction cost of power optical cable network. Thoroughly considering the particularity of power optical cable network construction and the differences of cost structure, an evaluation index of resource sharing is designed, and an optimization method of optical cable route in loop communication system, in which the demand relation of communication capacity requirement and sharing of optical cables are taken into account, is proposed. Taking the backbone loop communication network for 500 kV substations in a certain provincial power company as the case, the optimization schemes of optical cable network for 500kV substations under different conditions are analyzed and compared.

Keywords: optical cable route TSP model evaluation index of resource sharing network optimization

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