

特高压半波长输电系列论文

特高压半波长交流输电线路沿线抽能供电初步研究

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摘要:

提出了在特高压半波长交流输电线路下架设抽能导线为线路周边负荷提供电能的新型供电方式。基于对抽能供电系统等效电源的分析, 得出交流输电线路水平和三角排列方式下抽能系统的各项参数。通过建立交流输电线路和抽能导线的模型, 数值分析了抽能供电系统的负载特性, 给出提高其负载能力的方法, 并进一步分析了输电线路单相接地故障对抽能供电系统的影响。

关键词: 特高压 半波长 抽能供电 等效电源 负载特性

Preliminary Research on Power Extraction System Laid out Along UHV Half-wavelength AC Transmission Line

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Abstract:

A novel way, which is called power extraction system, to supply power for power load around half-wavelength AC transmission (HWACT) line by energy extraction from HWACT line is proposed, and the energy extraction is implemented in such a way: a certain length of energy extraction conductors, which are parallel with HWACT line, are laid out beneath the HWACT line. The equivalent source of power extraction system is analyzed, thus the parameters of power extraction system under horizontal conductor arrangement and triangle conductor arrangement of UHV HWACT line are obtained. By means of building mathematical models for UHV HWACT line and power extraction conductors, results of numerical analysis on load characteristics of power extraction system is performed and the suggestions on improving load capacity of power extraction system are put forward. Furthermore, the impacts of single-phase earth fault occurred in UHV HWACT line on power extracton system are analyzed.

Keywords: UHV half-wavelength power extraction equivalent source load characteristic

收稿日期 2011-06-09 修回日期 2011-06-23 网络版发布日期 2011-09-13

DOI:

基金项目:

中央高校基本科研业务费专项资金项目(09TG01)。

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