Effect factors of sandstorm on Power Transmissions in Deserts

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Abstract

Severe sandstorm brings the challenge to the safety operation of regional power transmission in northwest desert regions of China. Sands from sandstorm take part in erosion process of link hardware of transmission lines, and the sand accelerates erosion the surface of the insulators. Based on the analysis of the effect factors such as sand diameter, sand component, sand erosion simulation experiments are done to get the faults of transmission lines. The results show that erosion sand component is mainly consists of quartz grains, and the grains with the diameter of about 0.09 mm~0.1 mm are the main erosions. Erosion part mainly occurs in contact area of link points, and corona discharges appear at rough points under high voltages, and bring about the hydrophobic decline of the insulator surfaces with the erosion time. The results provide the references for the maintenance of power transmissions in deserts.