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Insulated conductor covers for vulture protection on power lines

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Abstract

Overhead power lines are among the top contributors to vulture mortalities in South Africa due to direct contact electrocution. Furthermore these electrocution incidences on the endangered birds affect the power quality and the power reliability. Utilities around the world, faced with the same problem, have implemented various solutions such as reconfiguring the lines to bird-friendly structures, retrofitting the existing structures and making use of underground cable by-passes. The choice of these preventative measures is a function of cost and reliability. This research presents a case study involving insulated conductor covers that were retrofitted on 88 kV power line structures to mitigate vulture electrocutions. This research report presents a theoretical evaluation of the performance of the insulated conductor covers together with laboratory tests performed to evaluate the theoretical predictions. These results conclude that the insulated conductor cover flashover performance is similar to that of High voltage (HV) insulators however it requires a lower specific creepage distance to prevent flashover for any corresponding pollution severity level.