ABSTRACT

Clearances are an important aspect of High Voltage (HV) transmission line design, construction and maintenance. A software tool that combines clearance violation analysis and optimum loading operating conditions for power lines could save power utilities the capital cost of refurbishing transmission power lines that marginally exceed maximum power line clearance distances. This can be achieved by operating the power lines at an optimum amperage level for any given set of weather conditions.

This research project proposes a low cost MATLAB® based software tool that detects clearance violations and determines operational limits on transmission power lines using prevalent weather conditions as well as the power line amperage. Various power lines around the states of Missouri and Illinois in the United States of America are analysed to test the viability and functionality of the software. In order to validate the accuracy of the program, the results obtained were compared to results from PLS-CADD®.

Key Words: conductor, clearance, sag, software, temperature