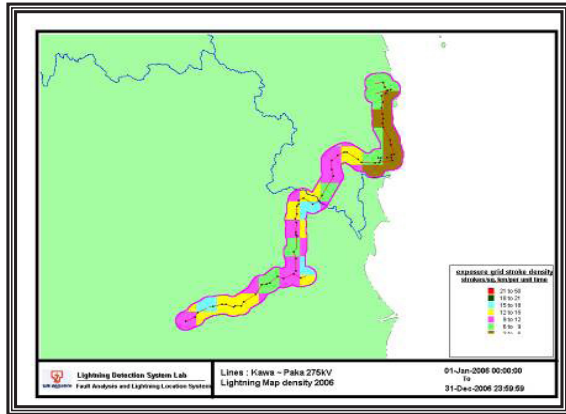


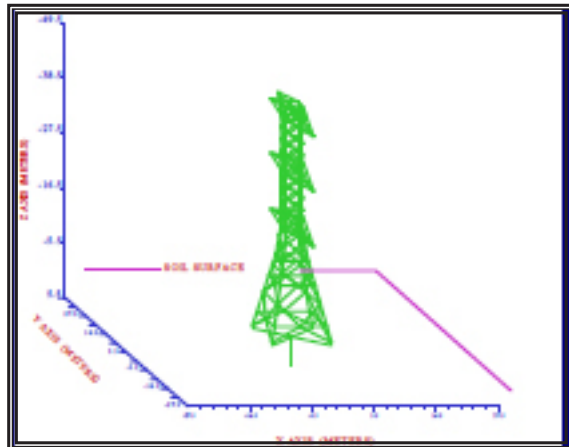


R&D Fund Project

Study on Towering Earthing Design to Reduce Faults on Transmission Lines Due to Lightning



Ground Stroke Density Map of the 275kV KAWA-PAKA Line



CDEGS 3D Model of a 500kV Transmission Tower

Project Overview

Lightning is the primary cause of trippings on overhead transmission lines in TNB. Tripping records indicate that the largest percentage of the transmission line trippings in TNB is due to lightning. There have been incidents where faults occurred on transmission lines with tower footing resistance values below the TNB-specified limits.

There is a need to study and understand the dynamic behaviour and performance of transmission tower earthing system under the high frequency and transient conditions. This knowledge is crucial in an effort to reduce faults on the transmission lines due to lightning.

Deliverables

- Final Report encompassing the findings of the simulation studies and the proposed tower earthing methods and designs for the standard 132kV, 275kV and 500kV galvanized steel towers of lattice and of monopole designs in TNB to mitigate lightning problems on lines.
- Tower Earthing Guideline Document detailing the tower earthing methods and designs as well as the standard installation procedure.

Benefits

- Improved and standardized design practice throughout TNB Transmission Division
- Reduced transmission line trippings due to lightning
- Increased supply reliability and system security
- Assured personnel and public safety
- Optimised material costs for earthing electrodes installation