



R&D Fund Project

Corrosion Survey On 132 And 275kV TNB Transmission Towers



Condition of soil at ground level of tower that contributes to high level of



Typical corrosion at tower foot caused by wet-dry condition in

Project Overview

TNB operates & maintains a total of over 28 000 transmission towers located across the width and breadth of the Peninsular. These towers are exposed to various environmental conditions and are subjected to corrosion.

This project investigates the conditions of transmission towers in service in TNB and identifies measures to mitigate the problem. Towers located in marine, industrial, urban and rural areas were physically inspected, examined and measured. Field tests were carried out to investigate the

rates of corrosion in different environmental conditions (marine, industrial, urban and rural). Various makes of coating materials were evaluated for their effectiveness.

Appropriate mitigation measures were proposed. These measures cover the aspect of both design and maintenance, and take into consideration of environmental conditions in different areas (marine, industrial, urban and rural) in which the towers are located.

Deliverables

Guideline for mitigating the problem of corrosion on transmission towers. The guideline outlines the aspects of both, design & maintenance as follows:

- a) Condition- and location- based tower maintenance
- b) Tower inspections and maintenance recording, reporting and data-keeping procedures
- c) Corrosion damage classification (5-Stage Corrosion Damage Chart) to assist TNBT in identifying the remedial measures and planning & carrying out the maintenance work
- d) Selection of coating material that is best or most appropriate in terms of practicality, technical performance and cost-effectiveness

Benefits

- a) Effective use of resources through condition- and location- based maintenance
- b) Reduced cost of maintenance through improved maintenance practices
- c) Reduced risk of damage and increased life of transmission towers
- d) Improved transmission lines and power system reliability
- e) Improved data recording, keeping and maintenance; improved database useful for planning and carrying out maintenance activities.