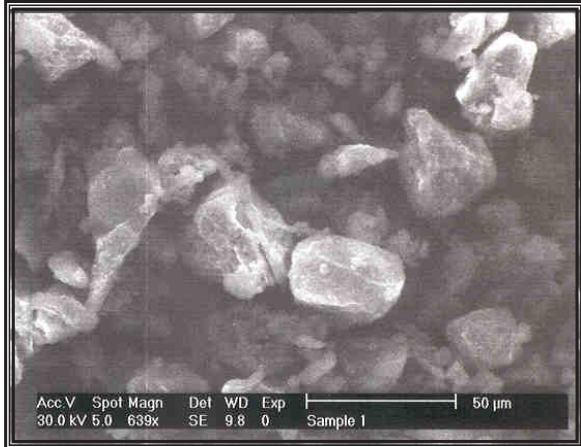


R&D Fund Project

An Environmental Effect And Deposition Accumulation Study On Switchgears



Condensation on Switchgear Insulators



Microscopic View

Project Overview

TNB has encountered numerous failures at the distribution substations due to switchgears failure. Studies by Tokyo Electric Power Company (TEPCO), Japan in 1999 on TNB's 11 kV & 33 kV underground distribution network indicated that the failure was

due to poor environmental air quality around the switchgear inside cubicle areas. Furthermore, the moisture in the air condensed during the cold night on the surface of the switchgears insulators and caused insulation breakdown and flashover. It was discovered during the course of this project that the pollution level only reached to medium severity (0.15 mg/cm²) based on 6 months of measurement. It is safe to conclude that the maintenance of the switchgear should be conducted at 6 months intervals. Condensation is most unlikely inside switchgear fitted with heater. Heater inside the cable compartment should be continuously operated to reduce any possibility of condensation.

Deliverables

A comprehensive report including the following:

- The result of the investigations and the study that provides solutions and recommendations towards system improvement including the control of environmental contamination and deposition accumulation.
- Failure Analysis on Switchgear
- Leakage Current Monitoring Systems

Benefits

- The result of the investigations and the study provided solutions and recommendations towards system improvement including the control of environmental contamination and deposition accumulation.