



R&D Fund Project

The Study On Evaluation Of Different Types Of 11kV Cable Joints For Underground Cable For TNB Distribution Sdn. Bhd.



Testing Bay



3 Core XLPE Cable

Project Overview

There have been high failure rates of 11kV XLPE three core underground cable joints in the TNBD system. Urgent results were required to guide a policy decision on new joint technology. The study focused more on joint technology and not the brand or suppliers. Five types of XLPE cable joint were selected for further

investigation and assessment. Evaluation was carried out based on skill requirements (material, method and tools), design verification (electric stress analysis), heat cycle test, water penetration test, and vibration (mechanical test).

Test results indicates that Cold Shrink Hybrid and Premoulded joints are capable of withstanding the operating conditions likely to be encountered in service while requiring minimal skill and time to install. Other types of joint considered in this study appear to show lower performance in the presence of water in the joint.

Deliverables

- A report that contains recommendations to TNB Distribution on the suitability of various joints based on various evaluation criteria.
- The types of joints covered are Tape and Resin, Heat shrink, Premoulded, Cold shrink and Resin, and Cold shrink hybrid.

Benefits

- The recommendations have assisted TNBD in coming up with policy decision.
- Outcome of this project has potential to reduce cable failure rates.
- Recommendation from the project has been adopted by TNBD Engineering and is in the process of being implemented at Kulai, Klang, Metro, and Penang.