

**PARTIAL DISCHARGE DETECTION FOR BREAKDOWN
IDENTIFICATION**

This thesis is presented in partial fulfillment for the award of the
Bachelor Engineering (Hons) in Electrical Engineering
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In the name of ALLAH Most Gracious Most Merciful

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ABSTRACT

This thesis presents partial discharge detection for breakdown identification of a distribution cable. Partial Discharge is one of the main causes of underground cable failure in operation. Therefore it is the responsibility to the power utility such as Tenaga Nasional Berhad (TNB) to ensure the continuous and optimum electricity delivery to the consumers.

The presence of partial discharge in an underground cable need to be detected before it can cause breakdown to the cable insulation. Therefore it is suggested that the jointing quality need to be improved to prevent insulation failure on the jointing of cross-linked polyethylene (XLPE) cable and the aging cable above 20 years which needs to be replaced by paper insulated lead cable (PILC).

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The development of the country towards a developed nation which is equipped with a variety of business development, industry, company and various other improvements is a challenging task. Every effort is supported by various sectors, particularly in terms of electricity supply and indeed this system is the mainstay of the nation. Therefore it is very important to ensure continuous supply and hence it can satisfy its customers and users of electricity.

In Malaysia, the Malaysian government had entrusted the supply of electricity to a corporate body corporate which is Tenaga Nasional Berhad (TNB), which began in the early 20th century. The system is running in three stages to reach the customer namely the generation, transmission and distribution.

According to the Wikipedia, Tenaga Nasional Berhad is the company for electricity Malaysia's largest business assets amounted to RM 60.0 billion. The number of subscribers is more than 6 million in Peninsular Malaysia and Sabah. TNB has a capacity of 11.296 MW for the electricity generation. TNB generated by hydroelectric plants and thermal plant.

Sufferness and big challenges have been experienced long ago. Damage resulting in significant losses each year to TNB was detected mainly found in the cable connections. In addition to the cable age, mostly over the age of 20 years, the negligent of third party maintenance work on site cable locations for the