

# **CONDITION MONITORING OF LOW VOLTAGE SUBSTATIONS UTILIZING INFRARED THERMOGRAPHY**

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## **ABSTRACT**

This report describes the condition monitoring (CM) of Low Voltage Substations utilizing Infrared Thermography (IR). Deep discussion will be concentrated on CM concept, thermography concept and the use of thermography inspection in helping Tenaga Nasional Berhad (TNB) related to breakdown, overload and tripping problems at substations. The equipments inspected are transformers, low voltage board, substation components and transformer. A recommendation can be made so that proper action can be taken before the unit suffers additional damage. The developed software have been also developed to simulate of IR Analysis

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# CHAPTER 1

## INTRODUCTION

The latest developments in thermographic equipments make this technology one of most important tools in condition monitoring for the present and future. Achieving increased efficiency involved cost cutting in many areas, including organizational downsizing and restructuring. Thus, maintenance and operations managers are often faced with difficulty of achieving higher efficiency goals following budget, personnel and equipment reductions. The importance of this project is due to the maintenance activities that have become the most important issue in the running of an organization or equipments. It can reducing the cost of expensive repairing the equipments and also avoiding unwanted problems that will likely to occur such as breakdowns and faults condition of the their equipments [1]. The main factors that contribute to the importance of the activities include the environment concerns, safety issues, warranty and liability factors, ageing plant and equipments, and drive for cost reduction.

This reports presents condition monitoring that is able to detect defects by Infrared Thermography on the electrical power substations. This Infrared Thermography Analysis can monitor the life of that equipment and help us to make decision whether to repair or replace the problematic equipment [2].