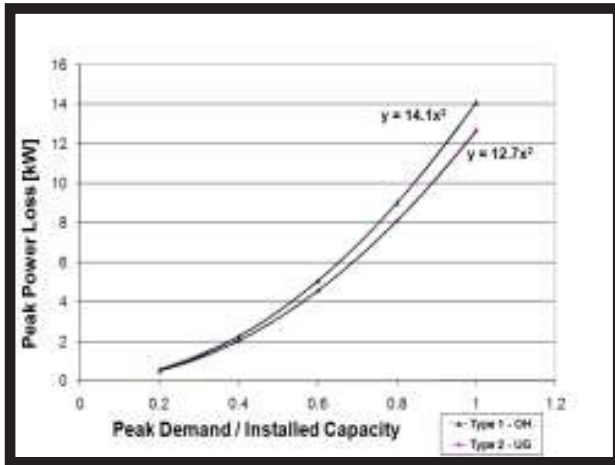
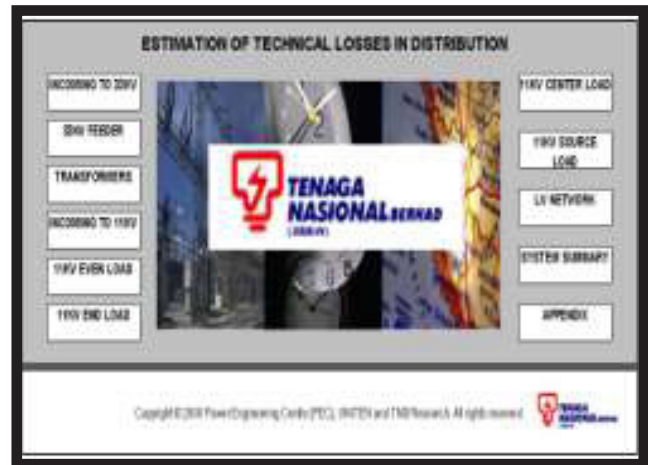


## R&D Fund Project

### Analysis and Development of Improved Methodologies for Technical Losses Estimation in TNB Distribution System (Phase 2)



Peak Power Loss Functions of Overhead and Underground Low Voltage Network



The losses estimation tool's front page

### Project Overview

There is a high value proposition for reducing losses since a 1% reduction may generate savings of between RM100 to RM150 million. Before any concrete mitigation effort is taken to reduce technical or non-technical losses in distribution system, there is a need to first establish the technical loss level of the distribution system. The developed methodology is implemented using spreadsheets where users input relevant data such as energy sales units, peak demand, load factors, cable length, select load distribution profile, average transformer capacity, and average percent loading of low voltage network to calculate the respective technical losses of each component and the whole distribution network. Results of technical losses of each network component, namely 33 kV feeders and network, 11 kV feeders and network, 33/11 kV transformers, 11/0.4 kV transformers and low voltage network are displayed separately on the spreadsheet.

### Deliverables

- Improved methodology and determination of technical loss level including level of contribution of network components
- Analysis of system and component losses

### Benefits

- In this R&D project, an improved, simplified methodology is developed to estimate technical loss levels more accurately. The methodology has been further simplified using an easy-to-use spreadsheet which could give TNB a reasonably accurate estimation of the technical loss levels in distribution system and its key components.
- The spreadsheet tool can be used by planners for better planning. It can also be used to determine the most suitable and practical steps to reduce the loss levels by changing the variables and performing the loss analysis as performed on all case studies.