# CHAPTER 5

# Conclusion and Recommendation

## 5.1 Conclusion

This thesis presents the method of maintenance planning process based on the principle of Reliability Centered Maintenance (RCM), which is applied to the electrical distribution system of EDL. The electrical distribution system of Phontong substation has selected to be an example for the studied case. The maintenance planning based on the principle of RCM will be compared to the existing maintenance planning of EDL to find the possibility of maintenance planning, which will be reduced the preventive maintenance cost and the customer outage cost due to the power interruption. The data of power interruption, data of maintenance planning and data of maintenance budget from EDL is used for analyzing to select the problem solution for the most critical problems.

According to the result of study case, the selection of the appropriate maintenance activity based on the principle of RCM can be reduced the number of outage under maintenance cost budget and applicable maintenance frequency, which are three times per year for tree trimming activity and hot spot checking activity and four times per year for system inspection activity. Additionally, it also can minimized the customer impact due to the power interruption becoming a better services quality and high satisfaction for the customers.



In the future, the maintenance planning based on the principle of RCM can be applied for existing and future planned for electrical distribution system of EDL. The RCM method enables EDL to do facility management to maybe quantifiable decisions on maintenance costs while increasing power system reliability.

## 5.2 Recommendation

This thesis has used the data, which is based on the power interruption statistical data, maintenance activities, maintenance budgets and appropriate maintenance activities selection. Additionally, some data is based on the questionnaire from EDL staff due to the inability of the experiment, change the frequency of maintenance activity for distribution system of EDL. Therefore, the accuracy of this information is depended on the knowledge and experience of staff.

The future work, to achieve efficiency in maintenance planning based on the principle of RCM should be tried the implementation of the maintenance plan and collected more detailed data of power interruption occurred including the type of equipment and failure mode occurred, a cause of the failure mode and any impact due to the power interruption such as the number of customers impact, the electrical power loss, and customer outage cost due to the power interruption. Consequently, EDL should be implemented the RCM method to be as a guideline and these data will be applied to analyze and improve the maintenance planning based on the principle of RCM. Additionally, the maintenance activity should be planned in every year and be considered the load behavior in each zones of distribution system.