# 摘　要

本論文提出一套新的程序用於訂定電力公司的用戶供電可靠度之地區性目標。一般而言，電力公司的管理階層係運用可靠度指標值來訂定公司的可靠度總體目標，譬如：運用系統平均停電時間指標、系統平均停電次數指標等。就平均停電時間值或平均停電次數值的降低而言，通常要求各區處的可靠度指標值與總體目標值降低相同的比率。如此，按照總體目標值相同降低比率的方式，對於因管理完善而致系統可靠度較佳的區處則不公平。

為解決此困難，本論文採用「解析式階層程序」提出一套新的作法，此法考量各個區處之間的差異，包括：地理環境、負載、線路、用戶、維護狀況與擴充預算之規模等條件。對於這些差異性因素：(1)設定量化指標，用於量測各個區處的現況或各區的指標值；(2)衡量各個差異因素對用戶停電時間或用戶停電次數之影響，據之對各個差異因素賦予相對權重。

由於每個差異因素的影響係個別予以評估，因此任何會造成區處目標失真的因素，在評估過程中可以有效地剔除。本論文依據「解析式階層程序」設計地區性差異模型及權重擷取程序，測試於台電系統，運用此法將台電公司的總體可靠度目標值合理分配至公司的 6 個供電區營運處以及 22 個區營業處。

本論文所提出的程序，經稍加修改，可擴大應用於設定不同電力公司合理的用戶供電可靠度目標值，且可作為不同電力公司的可靠度水準之比較基礎。

# ABSTRACT

This thesis presents a new procedure for setting the target levels of reliability performance across service regions of an electric utility. Conventionally, the management board of utility companies sets corporate targets on reliability indices, such as the system average interruption duration index (SAIDI), the system average interruption frequency index (SAIFI) etc., in terms of the SAIDI or SAIFI reduction, and then dispatches these corporate targets to the regional offices commonly at the same percentage of reduction as set for the corporate targets. Such an even distribution of corporate targets among regional offices is unfair in particular for the offices that have reached a good record through their managerial effort.

To overcome this difficulty, a new procedure based on the analytic hierarchy process (AHP) is designed, which accounts for the disparity among regions on a variety of factors including the geographic, load, circuit, customers, maintenance work and expansion budget conditions, by: (1) measuring the regional status of each factor, and (2) weighing the relative impact among factors on the regional SAIDI or SAIFI.

Because the weighted impact of each disparity factor is evaluated individually, any disparity factors which have clearly distorted the benchmarking in setting regional performance targets can be segmented effectively from the evaluation. The regional disparity model and the weight acquisition procedure, designed by following the AHP, have been tested in the field on dispatching Taipower's corporate targets to her 6 transmission regions and 22 distribution districts. The disparity model, weighing procedure and field test results as well as the effectiveness and limitation of designed procedure are presented.

The proposed procedure, after slight modification, can be extended to setting the target levels on reliability performance across utilities, and can serve as the basis for benchmarking the reliability performance among utilities.