Chapter 8

Conclusion and Recommendation

This dissertation presents an application of Diakoptics or the piecewise method for large-scale system Load-Flow problems. The technique (as in Chapter 4) is expected to improve the characteristic of convergence, compared to the previous work (41). A computer program has been developed and can be used to perform calculations by a Power Utility. Special features of the program include :

1. Incorporate Sparse Matrix technique to reduce memory storage requirement (1,3,6-11,13,17,18,33,50-60), in the computer program, (see Appendix D).

2. Fully interactivity with user who can make any alterations to the system data and/or the format of output (46,61).

The development of this dissertation can be summarized as follows:

1. Modify the method of nonlinear Diakoptics to the NRLF.

2. Development of Optimal tearing of Load-Flow by nonlinear Diakoptics (7,33,37,38,65).

3. The algorithm of the Fast Decoupled Load-Flow can be improved by the technique proposed (19,62,63).

4. For very large-scale Power Systems where the number of tie-line is large, the multilevel Diakoptics (33) can be applied.

5. Since the whole system can be subdivided into smaller sub-systems, the sub-systems's solution can be processed independently and locally and by a computer interlinking, the sub-systems's solution are transferred to the main computer to be combined and from the whole solution. By this method the whole solution can be found faster than if only one computer of limited size is used (33-36).

6. Incorporate the automatic tap-changing and phase-shifting transformers algorithm to help an user to adjust the power flow (8,9,11).

7. For further recommendations, the output of Load-Flow program shall be written into a file in a suitable format, so that the data can be read by some graphic software in order to produce Load-Flow diagram in graphical form.