



CHAPTER 8

CONCLUSIONS

The main conclusions of the present work are as follows :

1. A computer program for carrying out the GRG optimization method had been set up on the University's IBM 3043. For simplicity, this program had been called GREG.
2. GREG had been used to solve
 - a. An alkylation process.
 - b. The cogeneration problem of a pulp and paper plant.
3. A computer model for the cogeneration problem of an existing fibre synthetic plant in Thailand had been formulated and developed.
4. Based on a number of simulation results, the optimal operating condition of a cogeneration problem in synthetic fibre plant had been carried out.
5. The experimental optimization results indicate that when the purchased electricity is 1.438 Bath/litre and fuel cost increases from 2.62 Bath/litre to be 5.00 Bath/litre it was cheaper to buy more and to generate less electricity .And vice versa in case fuel cost is 2.62 Bath/litre and purchased electricity increases from 1.438 Bath/KW to be 1.869 Bath/BW it is found to optimally produce more steam in order to generate more electricity while purchasing as little electricity as possible. When optimization method has been applied ,the optimal condition saves the utility cost 331 Baht/h with comparision to the old operating condition. Condensate and sale price of steam has not

effected to the optimal operating condition of whole plant .But the effect of the amount of steam is resemble as the effect of increasing process requirement .

6.The ratio between the electricity and steam requirement is defined as exergy of electricity dividing by exergy of steam requirement.In case electric requirement is 11000 KW and steam requirement is 60.2 T/h (with exergy of 10979.78 KW),the optimal ratio between electricity and steam requirement was 1.002.