

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

1. The physical energy/exergy value is usually less than 5 percent of the chemical energy/exergy value for hydrocarbon, whereas of other components such as air and steam are the reverse.
2. For Plant 2 of Bangchak refinery, the steam production efficiency was 43.20 per cent whereas the electricity production efficiency was 38.53 per cent. Therefore, the losses from the Energy Complex were the effluent combustion gases from the Boiler A&B, the Waste Heat Boiler, machines and irreversibility's the processes. However, those losses are unavoidable.
3. The cumulative exergy consumption of the products of Plant 2 of the Bangchak refinery was appeared to be efficient and effective due to a occasional development of refinery processes.
4. The exergy analysis is a useful tool to determine the Cumulative Exergy Consumption values of products in terms of the amount of energy required producing the products.
5. The energy analysis gives to the quantity of energy, whereas, the exergy analysis gives the quality of the energy utilized in various parts of the refinery. Therefore, using both energy analysis and exergy analysis gives a better evaluation of each process and the plant as a whole.
6. The change in steam and electricity production efficiencies affects the Cumulative Exergy Consumption values of the products of the process.
7. The applications of the Cumulative Exergy Consumption can be applied to calculate the necessary increase of raw materials and fuels extraction for a planned increase of production of the product and evaluate the influence of price changes of raw materials and fuels on the production costs of the product under consideration.