

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

The main exergy driving of petroleum refinery is from the fuel used in the furnaces. The furnaces have a low thermodynamic efficiency due to loss in the combustion process. Furnace efficiency can be improved by reducing stack gas temperature, using air preheating, and reducing temperature difference between combustion gas and process fluid. Some changes in the use of furnaces would raise the efficiency of the refinery by reducing fuel consumption for examples reduced excess air, improved tube cleaning to reduce fouling.

For the heat exchanger network and the distillation column a heat integration network and thermodynamic analysis had been carried out since the initial design of the refinery. However, distillation using vapor compression or a heat pump could improve the thermodynamic efficiency of the distillation process.

For further analysis using cumulative exergy consumption which determine the sum of exergy of material resources consumed in the process could lead to a reduction in overall consumption of resource in the refinery process.