CHAPTER V

CONCLUTION AND SUGGESTION

Conclusion

The purpose of this study were to find the optimize of auxiliary heat for Solar Absorption System at Testing Building, School of Renewable energy Technology, Naresuan University when compared to the designed data, and to find result of diffuse fraction or radiation intensity (Weather condition) at three stages: diffuse fraction 10 – 20% (clear blue sky), 20 – 80% (cloudy) and 80 – 100% (overcast sky, dull day).

The result show that, the system runs unsteadily and dose not work on a suitable state. Some running parameters of the system need to be adjusted. The numeric value of LPG consumption of this system is high in general. The designed LPG backup is 48 kg/ 2 weeks,10 days operation. However the practical maximum LPG consumption is about 7.226 kg/day in November under fixed lowest inlet temperature to chiller at 75°C. In normally case, lowest temperature to chiller at 70°C, the maximum LPG consumption is about 5.1267 kg/day in September. Thus there is more scope to decrease the LPG consumption of the system.

The lower numeric value of LPG consumption result from lower efficiency of the collector η_C and higher diffuse fraction H_d/H. Because the calculated η_C was consist of tow fractions. One is the heat supplied to collector, another is the heat lost to surrounding. And one is the daily total diffuse, another is the daily total radiation.

The LPG consumption of the system decrease slightly when increasing the heat source (Solar radiation) temperature, instead only an increase in the difference between the inlet and outlet temperature of the collector. And, when the temperature of supplying hot water approaches to some higher level, the efficiency of the collector decrease. The irreversibility in the system that reduce η_C to a lower value than the ideal ones are due to the pipe have higher heat loss from the temperature difference between the surroundings.

The LPG consumption of the system decrease slightly when increasing the diffuse fraction H_d/H. For collected data, the time period of LPG consumption appear in morning and after noon of collected data efficiency of collector about 0.2508 (~ 47.78%designed data) Case H_d/H between 10 – 100% (overcast sky) the LPG consumption of system is higher cause low the heat source (Solar radiation) temperature, that reduce η_C to a lower value even decrease the ambient temperature that is cause increase due to the pipe have higher heat loss from the temperature difference between the surroundings.

Recommendation

If it is possible to operate the system daily on fixed starting and ending time. So there is residual heat stored in storage tank from pre residual heat stored in storage tank from pervious day. Also that is more desirable for collecting the valuable long term data to analyze and optimize the system

1. It is desirable to increase the mass flow rate through collector property that will increase the performance of the system
2. Maintenance and improve the insulation in pipeline, joint and tank for decrease heat lost