CHAPTER 5
CONCLUSION

5.1 Discussion and Conclusion

By imposing carbon tax tariffs on electricity costs, it was found that at low tax rates (LT), the percentage change in CO_2 emission reduction is almost constant for 10 years at approximately 0.5%. The effect is significantly different for the average tax (AT) rate and the high tax (HT) rate, particularly for HT, which deduction of CO_2 is much more effective in a longer term.

The impacts of carbon tax tariffs are the strongest in the first period of implementation, and then it gradually declines in the longer term. It can affect the high price of electricity which decrease labor demand in the market because of lower consumption. The level of lowering to a total activity output is dependent on how high a tax rate is imposed. The household sector gets less income from its earning due to decrease in demand of labor forces from the households. This affects to household's consumption budget. Contrastingly, under the high tax rate AT scenario, a total income of the government increases, accounts for 1.5%, while the income of the household sector decreases for 0.5%. Since the increase of the government's income grows faster the decrease of the household's sector, it is very important how the government spends for this extra income. Under this study, we assumed that the increase income of the government is spent for investment in next year for all sectors. This is to makes sure that the collected money from the carbon tax is recycled to stimulate more production with better production efficiency in the following years, to maintain the demand of commodities in the market and it can induce less cost in production for the following years. As a result, the CPI of each scenario of carbon tax declines in a long term. It implies that consumers' welfare can increase in a long term even the carbon tax policy is imposed.

It is crucial in this study, to show that by adopting a sound financial management, one can avoid any unfavorable negative of carbon tax regimes through re-invest in more productive technologies such as energy efficiency improvement at the end level. This implies that if a carbon tax is imposed, a counterpart of sound financial mechanisms for the green policy for energy and production's efficiency improvement must also be implemented in order to minimize the negative impacts of the carbon tax. In this study, we assume a fix constant carbon tax rate throughout a time period (10 years). In practical way,

the government can deploy a non-fix constant rate of the tax, such as a low rate at the beginning period and a high rate at the end of the period, or vice versa. It will give some freedom for the government to control any disruption of the economic development due to the negative impact of the carbon tax policy.

By conclusion, this study shows that the implementation of carbon tax on electricity generation for a developing country, such as Thailand is possible, provided that there is a prudent policy for re-cycling of the carbon tax for improving production in the long term. This is necessary to avoid any strong unfavorable negative impact on the economic development.

5.2 Limitations of the model

The model adopted the database in year 2010 which is an unofficial database. It assumes that all technology parameter and share parameter that are calibrated from database 2010 are maintained constant in analytical periods. It is not considered structure of economic change during the time which could lead to low accuracy result of the future, especially, electricity generation technology in the future will have been developed and changed technology to alter the proportion of energy resource in the generation sector.

In the CGE model, the database is a snapshot period, or only one year of data. The selected year is important to be made as baseline. If modeler pick up unusual base year, which there is a disaster in, the result of the model is not reflected the real economic structure.

5.3 Recommend for further studies

Due to the rigidity of the Social Accounting Model (SAM), which is based on the input-output model, the electricity generation technologies were assumed to be fixed over the period of this study, which does not reflect reality. A further study on how to modify an intermediate input table to represent new advance technology changes in electricity generation structures in the future is necessary to study on policy implementation on green electricity production by re-cycling of carbon tax to investment in those new technologies. In addition, the application of CES model for energy-economics analysis can be more effective, if more detailed data are obtained to formulate nested and other related production functions, which can represent for primary inputs of each activity of production, can be formulated.