

CHAPTER 5

CONCLUSION

5.0 Conclusions

The main conclusions of the study are as follows:

- i) The study has highlighted the importance of energy efficiency standard and label of TV sets to Malaysia. Hence it is recommended that the policy makers in this country implement the program. The organizations and authorities responsible for the implementation are Malaysian Energy Commission, Ministry of Energy, Water and Communications, Department of Environment, Economic Planning Unit and Department of Statistics.
- ii) The proposed test procedure for TV sets provides a guideline to measure TV's active and standby electricity consumption. Additionally, it also provides testing requirements and the resolution need to be achieved. It is expected that the proposed energy test procedure will serve as the basis to measure the efficiency and energy use of TV sets for the implementation of the standard and label program.
- iii) The standard adopted in this study is the 10% improvement from the average energy use baseline obtained from the statistical analysis. The proposed 10% standard improvement for TV sets seems reasonable as it has been proven from the cost-efficiency analysis that the baseline unit from each product

class could be improved 20% (class I), 16.2% (class II), 13% (class III) and 24.9% (class IV). This means that it is possible to overcome the proposed 10% standard by utilizing the current technologies.

- iv) The label adopted in this study is the comparative style which ranks TV sets according to number of stars with five star rating indicating the most efficient unit. Minor amendments are suggested to display energy efficiency index instead of power consumption in kWh. It is expected that the proposed improvement on the energy label will enable consumers to determine with ease the most efficient device as well as allow them to purchase any type of TV set from conventional CRT TV to plasma TV.
- v) For the proposed implementation of energy efficiency standard and label for TV set in 2005, it is possible to save approximately 8,452 GWh of energy at the end of 2009 which corresponds to bill savings of approximately RM 1,986,149,662 (US\$ 522,670,964).
- vi) The standard and label program will bring a total of CO₂ emission reduction of approximately 4,510,346 tonne, SO₂ reduction of approximately 20,452,192 kg, NO_x reduction of approximately 11,529,027 kg and CO emission reduction of approximately 3,130,478 kg from power generation in this country.
- vii) These positive impacts will contribute to overall national residential energy consumption reductions of approximately 5.1% in 2005 and increases to 11.5% reductions in 2009. Moreover the potential greenhouse gas emission

reductions during this period (2005 – 2009) is approximated to be 4.5 million tonnes which is 4.1% reduction from the total amount emitted in 1996.

- viii) The standard and label program are only effective till the end of 2009. Therefore it should be revised after this period to ensure the effectiveness of this program.

5.1 Recommendations for further study

- i) The TV energy consumption and the benefits from implementing energy efficiency standard and label should be investigated further by including commercial and industrial sector as well as government organizations.
- ii) Although the survey conducted in this study seems satisfactory to estimate the average TV usage duration per household, however a more comprehensive and extensive survey is required to investigate the type of TV set being used and the penetration of TV set in the rural and urban areas.

5.2 Barriers to the implementation of standard and label program

Malaysia is confronting several barriers for effective implementation and strengthening of national standards and labeling programs. The identified barriers are as follows.

- i) Lack of reliable market and baseline data for planning and evaluating the impact of standard and label program.
- ii) Inadequate testing infrastructure and human expertise for accessing the efficiency of household appliances.
- iii) Low public awareness regarding importance of energy efficiency as a national goal as well as a bill-saver.
- iv) Lack of technical information on test procedure selection and methodologies for setting minimum energy performance standard (MEPS).