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Thesis Title	Electricity Use in Residential Housing
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Candidate	Mr. Rungkamol Seehawong
Supervisors	Assoc. Prof. Dr. Chullapong Chullbodhi Asst. Prof. Kuskana Kubaha
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Abstract

The objective of this thesis is to study electricity use in residential housing of 5 different types, namely singlehouse, rowhouse, townhouse, condominium / flat and rentroom located in Bangkok, Samuthprakarn and Nonthaburi provinces by ways of direct measurement and housing survey. The topics under study are load curve, social - economic information, electricity use in electrical appliance, the relationship between consumption and the parameters and demand side management. Regarding load curve it was found that peaking occurs in the mornings and evenings and with increasing trend during weekends (Saturday - Sunday) due to more people staying at home. The household that consume more than 301 kWh per month were found to use increasing amount of electricity during night time, for air conditioning. In the case of singlehouse, the family size, number of working people, and family income were found to be the greatest, followed by rowhouse, townhouse, condominium / flat and rentroom respectively. The family heads of the first three types of housing were found to be between 41 - 50 years of age and most of them work as company employee. The results also indicate family income have direct influence on the amount of electricity consumption. For singlehouses, the amount of electrical used in the areas covered by the this study in kitchen utensils was estimated to be 56,215,411 kWh per month or 30 % of the total amount used in appliances and 53,004,033 kWh per month or 29 % for cooling appliances. As for rowhouse, townhouse and condominium / flat, the amount used in cooling appliances was estimated to be 55,021,151 kWh per month or 43 %, 19,282,262 kWh per month or 35 % and 38,875,563 kWh per month

or 55 % of total use respectively. In the case of rentroom, the amount used in kitchen utensils was 2,475,427 kWh per month or 45 % of total use.

Factors contributing to the amount of electricity consumption were found to be family income and house structure type (wooden house) in the case of singlehouse. In the case of rowhouse, family income and family occupation were found to be the dominant factors. The influenced factor for townhouse, and condominium / flat was family income, whereas the number of family members was the only affecting factor in the case of rentroom. Further, for energy consumption guideline 4 demand management measures are proposed. Firstly, use of high efficiency equipment should be encouraged. With 10 % increase on average, it is estimated that 44,140,429 kWh per month can be saved for all the houses in the areas under study. Secondly, the use of control equipment such as timer switches should be encouraged to reduce electricity wastage. Thirdly, proper size of electrical appliance should be encouraged, also to reduce wastage. Finally, household members should be encouraged to have rational and conservation approach in electricity usage.

Keywords : Electricity Use in Residential Housings / Electricity Load Curve / Use of electrical Appliances / Correlation between Electricity Consumption and Social - Economic Variables / Demand Side Management