

Thesis Title	Suitability in Using TOD and TOU Rate for Commercial Buildings
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#### Abstract

This research investigate suitability in using of TOD and TOU rates for commercial buildings. In 1997, the government assigned new electricity tariff structure aiming to reflect the marginal cost of electricity at all periods. In other words, value of electricity could be equated with varying costs of production over different time of day and time of use. The initial TOD rate was adopted by public utilities in large consumers, i.e. peak demand exceed 2,000 kW with a mandatory rate in 1991 to reduce the load at peak hours (18.30 – 21.30 p.m.). The objective of the new tariff structure is to provide incentive to consumers to shift their peak load. The effectiveness of pricing measure is able to succeed to a certain level peak. However, the ideas of TOU rate has been expanded to cover medium size commercial establishments and new users to keep a more uniform daily load curve. Consumers who have already been using TOD rate could choose between TOD or TOU rate as suitable to their own load pattern.

The study has two main steps. First, the study analyses load profile of 30 large commercial buildings, consisting of 10 office buildings, 10 department stores and 10 hotels. The procedure simply TOD to TOU rate for office buildings and department stores and special purpose rate to TOU rate which influence electricity expense bills. The results will show the per units costs and percentage difference of electricity expenses of each building. The study will recommend the suitable benefits of electricity rate structure for each building group. The results of load profiles analysis show that office buildings and department stores will pay approximately 18.79% and 14.95%, respectively when choosing TOD rate instead of TOU. For hotels, if using

special purpose rate electricity expense will be less by 8.35% compared to TOU rate. The second step is trying to find suitable economics for energy conservation measures applying to achieve lowest electricity bills. The procedure is choosing one building phototype of each group performing energy audit to identify suitable energy conservation measures. The study concludes that electricity saving potentials in hotel, department store and hotel are estimated at 17.79%, 14.92% and 8.35%, respectively.

**Keywords :** TOD rate / TOU rate / Energy Audit / Peak Demand / Load Profile