

The Current Electricity Demand in Thailand

Tienchai Chongpeerapien*

Since 1987 electricity demand in Thailand has grown at a high rate of over 13 percent annually. Peak demand, which was 4181 MW in 1986, grew 13.2 percent in 1987 and 15 percent in 1988. By 1989, the demand grew 14.4 percent, reaching its present level of 6250 MW. In other words, peak electricity demand in Thailand has been growing by an annual average amount of 684 MW since 1987. Compared to the existing EGAT's 7434 MW "available" generating capacity, the "reserved" capacity is currently about 16 percent. However, this "reserved" capacity will be continuously eroded in the coming months because there will be no significant generating capacity addition while demand will be continuously rising at a monthly average of about 65 MW. By April 1990, the reserved capacity will fall to a critically low level of less than 10 percent, because the new generating capacity will not come onstream until the latter part of the year. Meanwhile, the government should seriously consider energy conservation measures that might slow down electricity demand growth. Thus far, the government has formulated a Time of Day (TOD) electricity tariff, which is designed to encourage large industrial customers (requiring higher than 2000 KW of electricity) to switch their operation to non-peak hours.

Beginning on January 1, 1990, those consumers who operate during peak hours (18.30-21.30) will have their demand charge raised from the current flat rate of 170 baht/KW/month to 180 baht/KW/month. Those industrial consumers who operate during partial-peak hours (8.00-18.30) will be charged 90 baht/KW/month for the demand. There will be no demand charge for those who utilize electricity during the off-peak hours (21.30-8.00). The energy charge, however, will remain the same—at 1.22 baht/KWh for all of the large industrial customers.

According to some estimates, the TOD scheme will probably reduce peak demand by no more than 200 MW. However, the scheme is a step forward in the government's energy conservation effort. But, since industrial customers are only one part of the whole electricity consumption picture, there is still a great deal to be done in the area of electricity conservation.

[Figure 1](#) highlights electricity consumption by various economic sectors in the Metropolitan Electricity Authority (MEA) and the Provincial Electricity Authority (PEA) areas. The largest sector includes small- and medium-sized industrial customers who accounted for 26.2 percent of the total sales in 1989. Furthermore, this sector also had the highest growth rate in 1989—19.3 percent, compared to the overall growth rate of 14.4 percent. The sector also has equal amount of electricity sales in the MEA and the PEA areas—about 3900 GWh in 1989.

The amount of electricity sales to these industries is expected to be large since there are as many as 10,487 of these small and medium industrial customers. Moreover, their number has been growing very rapidly in recent years.

The second largest sector is the residential sector, which consumed 6789 GWh of electricity and accounted for 22.6 percent of the total electricity sales in 1989. The sector's demand increased 10.4 percent in 1989, partly as a result of strong residential consumption in the PEA area, which grew 13.5 percent. Potentially, the residential demand in the PEA area could grow at a high rate well into the future, since the average consumption per household is now relatively low but could very well be increased in the future. Since there are nearly six million PEA customers, compared to nearly one million in the MEA area, a higher future income of the provincial population could have a strong impact on PEA residential electricity demand in the coming years.

The third largest sector is composed of large industrial consumers whose power requirement is 2000 KW or higher. This is the group of consumers targeted for the government's previously discussed TOD scheme. Currently, the sector consumes 16.9 percent of total electricity sales, which amounted to 5064 GWh in 1989. The sector also has the second highest growth rate of electricity consumption—17.0 percent this year.

Small business (mainly shop houses) and large business (those requiring a 30 KW or higher power demand) accounted for 12.8 and 11.4 percent of the 1989 sales. Large and specific (BOI-promoted hotels) businesses had a strong growth rate of 16 percent in 1989, which came mainly as a result of the strong expansion of hotel and business office construction in both MEA and PEA areas.

In view of the strong growth of electricity demand in most economic sectors, the government should also aim to promote energy conservation in these sectors in addition to its industrial energy conservation effort. Currently, most large office buildings are designed to appeal to customers architecturally, with little or no consideration for electricity conservation. Furthermore, the significant growth in the use of air conditioners in households, particularly in the MEA area, is alarming. The MEA residential surveys show that the percentage of households owning air-conditioners rose from 12 percent in 1986 to 28 percent in 1987. Although the two surveys had significantly different sample sizes (900 for the former and 7,000 for the latter) the 1987 level of air conditioner saturation in households is astonishing. Furthermore, the surveys also show that the saturation level has been increasing for other types of high-energy-consumption appliances as well.

The government should take steps now to encourage electricity conservation in commercial buildings and households. Although Thailand is located in a tropical zone, weather insulation in buildings to conserve energy will be increasingly needed as the requirement for space cooling grows in the future. Granting tax incentives for building insulation and energy-saving equipment and establishing an energy efficiency rating for household appliances are some measures that the government should consider enacting. The government cannot afford to delay in taking appropriate measures to counteract the threat of rapidly increasing electricity demands.

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