

3. EDS FROM TNB'S PERSPECTIVE

Energy prepaid system or popularly know as Energy Dispensing System (EDS) is considered as a relatively new technology in Malaysia. Although similar system has existed for quite sometime in the telecommunication sector, their technology and mode of operation is quite different. The time lag in the prepaid system development between telecommunication and electricity sector occurs probably due to the urgency of the former compared to the latter. Phonecalls need to be made from different places and therefore it is convenient to carry card in order to use them. However, electricity meter is located at customer's home and meter reading is all that is required. As such, the need for prepaid system in the telecommunication sector is more pressing. TNB is geared towards implementing EDS as alternative to the present Conventional Electricity Billing Method (CEBM). The move is understandable looking at the benefits to be reaped by TNB.

3.1 Benefits of EDS to TNB

The advantages of EDS are numerous as far as TNB is concerned, these include:

3.1.1 Reduction in bad debts or number of defaulters

EDS requires payment to be made in advance. As such, customers need to purchase magnetic card or token first before they can trigger the switching mechanism back home in order to obtain the electricity supply. Invariably, this would mean no deferred payments or debts are allowed. Currently, the collection cycle for TNB is about 45 days and the average

number of defaulters stand at 5% of the total number of customers. The amount of outstanding unpaid bills are estimated at RM 600 million as of December 1995.

The implementation of EDS may not eliminate entirely those outstanding debts since it will only be utilized for domestic and commercial sectors (see Appendix I for different categories of customers) but it will help to minimize the amount. Automatic shut-off provided for by EDS will also helps to discourage customers from delaying their purchase. Under CEBM, even though customers have exceeded the time due, disconnection is not done immediately thus giving more time for customers to settle their outstanding bill and subsequently extending the collection cycle.

3.1.2 Reduction in operational cost

The implementation of EDS means that meter reading will not be necessary anymore. The amount of consumption will be based on the amount purchased. Beside meter readers, clerical services responsible for accounting and financial reporting will also be drastically reduced. In addition, technical teams responsible for disconnecting and connecting electricity supply will also no longer be necessary. These teams can be redeployed to work in some other areas including public relations, spotchecking, etc. The use of EDS augurs well with the scarcity of labor workforce. More and more responsibilities are delegated to the customers and machines. In this case, customer buy and read their own meter while the machine will check to ensure the customer abides to the agreed terms. The disconnection or reconnection of the supply will eventually be carried out by both parties. TNB role is left with checking and monitoring other customer services.

3.1.3 Minimize electricity thefts

No exact figures are known on the amount of electricity being lost through thefts. From the amount of losses obtained annually by subtracting electricity consumed from electricity distributed, it was found that the total losses attributed by the distribution system is approximately 11% of the revenue collected. The losses contributed by technical inefficiency is estimated at 7% and the remainder 4% is due to thefts. Based on the current year turnover of about RM 6 billion, losses due to thefts is about RM 240 million annually.

The amount of losses due to thefts is quite high. Every effort must be spared to ensure the amount be minimized. With the introduction of EDS, these unhealthy activities can be checked in two ways. Firstly, the system comes with the state-of-the-art 5 levels security system which will not permit almost any form of tampering. Secondly, the monthly reporting churned out by the system will pinpoint any peculiar consumption pattern by the customers to allow for spotchecks be conducted by TNB personnel.

3.1.4 Efficient accounting and reporting system

EDS comprises of hardware and software that is computer program that actually operates the card or token dispensing centers and system master station. In other words, any activity on the source end is monitored by keying in the data. The program is built-in to actually initiate accounting process as well as monthly reporting on a monthly or even weekly basis. The utilization of IT-based on-line accounting and reporting helps to reduce error as well as improved the data handling of the cash

movements. This would eventually lead to further reduction in manpower and improved accounting and reporting process.

3.2 Critical Success Factor

Previous section discussed on the benefits that can be derived from EDS by TNB. Subsequently, in order for TNB to implement the system successfully in Malaysia, a number of criteria need to be fulfilled. Based on preliminary investigations and feedback from other countries which have successfully implemented such a scheme indicate several critical success factors including :

- Attractive Financial Return
- Customer's Acceptance
- Adequate Infrastructure
- Appropriate Rules and Regulations.

3.2.1 Financial Viability

As stated earlier, among the benefits of EDS to TNB is reduction in operational cost and reduction of bad debts, and the benefit of receiving money in advance. However, in return, TNB will have to fork out some money to subsidize the cost of meters and other associated expenses. Therefore, a detailed financial analysis is required to determine the financial viability of such system. Appendix 2 shows the financial analysis being carried out to determine the viability of EDS based on two possible scenarios mentioned earlier in Chapter 2.

Based on these different scenarios, the analysis can be summarized as follows :

Scenario 1 :**NPV : RM 6.46****IRR : 13%****Scenario 2 :****NPV : RM 33.59****IRR : 16.7%**

It can be deduced that Scenario 2 is more favorable compared to Scenario 1 because it provides more saving to TNB that is a saving of RM 33.59 per meter compared to RM 6.46 per meter. However, other scenario are still valid if various aspects of the management of EDS are being considered. For example, the efficiency of the local vendor in undertaking customer service and after sales as compared to TNB, coordination problem if TNB is to undertake Scenario 1, possibility of reducing the tariff for EDS's customers, etc. In other words, the intangible portions of the EDS must be evaluated together with other tangible aspects to ensure a viable implementation model.

3.2.2 Customer's Acceptance

Customers being the end-user of the EDS have an important role in ensuring the success of EDS. With the growing awareness of their consumer's rights, the customers are very vocal in putting forward their views. This is observed when TNB made an announcement recently that they are going to implement EDS. The consumer's associations were among the first to express their objection to the system. They are very concerned, to name a few, with the advance payment nature of the system, its reliability and the availability of card or token dispensing centers which are convenient to them.

TNB has undertaken several measures in order to gauge the customer's feeling on the whole issue. A customer's survey on the feasibility of the Energy Dispensing System was conducted followed by a pilot project in Shah Alam and to study the customer's response to the implementation of EDS were undertaken. The detailed discussion on the whole matter will be carried out in the next chapter. The results of the surveys show an overwhelming support for EDS. The critics from the customers who disagreed with the system are minor and can be resolved quite easily. Despite all these supports, TNB would still need to carry out an effective marketing strategy including advertisement and other promotional incentives in order to convince the customers further.

3.2.3 Availability of Adequate Infrastructure

Figure 2.2 in the earlier chapter shows the arrangement of EDS network. EDS comprises of System Master Station (SMS), electricity dispensing centers (EDC), and telephone lines linking EDC to SMS. The system is arranged in such a way that information obtained at EDC will be collected and collated at SMS. As such there will be a considerable amount of data flow between SMS and EDC. An efficient system would require an uninterrupted communication link between the two to ensure integrity of customer's transaction at the EDC. The number of EDC's and their respective locations are also very critical. The premises chosen for EDC must fulfill certain criteria including :

- Radius of coverage about 3km
- Available until late hours
- Dedicated telephone line for the EDC

Normally, a grocery shop or 24-hour convenience store is an ideal place for EDC. This is because this is the place where customers frequent during at odd hours. Based on a study, 3km radius of service is just right. However, the number of customers within this 3km radius also will affect the number of EDC. This in turn is contingent on the number of hours the shop is open. The whole idea of observing these guidelines is to ensure no congestion at the EDC counters at any time. In future, the telephone line can be upgraded to using optical fiber. This would open up a new era in EDS and computer system allowing more interactions and new features being introduced to the system. With the advent of sophisticated computer technology, it is just a matter of time before this system can be used to integrate with other billing systems as well.

3.2.4 Appropriate Rules and Regulations

EDS is considered very new to most part of the world including Malaysia. As such appropriate rules and regulations are necessary to ensure orderly and proper implementation of the system. Electricity Supply Department as the custodian of the regulatory framework has been working closely with TNB and electricity utilities of South Africa in outlining these rules and regulations. As far as TNB is concerned this aspect is quite critical to ensure the safety of the system, the standard equipment being utilized, and the reliability of the system being guaranteed. In addition, these rules and regulations will also prevent unscrupulous vendors from taking advantage by supplying inferior and thus unsafe product to the customers.