Prepayment metering system

By Amit Kumar Gupta

Introduction

The term prepaid has been very much in news since the mobile revolution began in India a decade ago. Various factors have led to the genesis of Prepayment Metering concept in India keeping in view the benefits that's going to accrue to all involved in the concept and its acceptance.

Prepayment or pay as you go system is receiving more and more attention worldwide as utilities are looking at ways to improve customer service, improve their cash flow and minimize their risks. The concept of prepaid remains the same but there is going to be a paradigm shift in the application. It's altogether a new arena in Metering India which is likely to be important to revenue and energy management. This will in the days to come, open up new vistas for investment and deployment of infrastructure for better customer services. There will be immense benefits, which will be reaped by the State Electricity Boards (SEBs), private utilities and citizens of India.

The objective of the paper is to share the details of Prepayment Metering system as a concept and highlight the role to be played by all stakeholders in getting the concept effectively implemented for the overall benefit of the Indian Power Sector.

Background

Prepayment metering system is very simple. The consumer has a new kind of meter installed in his house which has an inbuilt disconnecting device. The customer buys electricity in advance by paying at any of the Vending office. Once the amount is exhausted the meter automatically disconnects the supply after providing an alarm. The consumer can reconnect himself by buying more electricity and recharging the meter.

Geographically, prepayment meters have been deployed across the globe. South Africa and UK have deployed this system in huge volumes and with considerable success. Other countries who have adopted the system include Brunei, Argentina, USA, Poland, New Zealand, Malaysia, Israel, Zimbabwe, Nigeria, Kuwait, France, Bangladesh and India.

Why Prepayment?

Power utilities in India have been striving hard to extend best possible support to customers by improving revenue collection efficiency. Meter reading, preparation of bills its distribution and collection of payments takes away a considerable amount of time and efforts for the utility which can be eliminated by the prepayment metering system.

Interestingly electricity supply is one of the only commodity at present which is billed after it is consumed, everything else we use in life (cooking gas, prepay mobiles, grocery, clothes etc.) is paid for before it's used. Demand side management, improved quality of supply along with high customer satisfaction has resulted in acceptance of the new system by utilities everywhere.

The benefits that Utility can look forward to on behalf of customers as well as the utility are as follows:

Benefits to Utility:

a) Up front payment for electricity:

Energy is paid for before it is consumed. This is in contrast to the current arrangement of paying for them after use. The benefits will lie in earlier cash flow for Utility.

b) No unpaid bill:

Because energy is prepaid the problem of collection of arrears and unpaid bills will be no more.

c) No meter readings:

The problems associated with the logistics of meter reading will be eliminated, providing a substantial saving to Utility.

d) Lower overheads:

As there is no meter reading, no billing, no bill generation, there is a gradual decrease in the overheads. This manpower of Utility can be put for some further value added jobs like vigilance etc.

e) No incorrect bills:

Because no bills are sent, incorrect billing as a result of inaccurate meter readings is no longer a problem.

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Implementing a Prepayment Project

To implement a prepayment project we have to give importance to the needs of both the utility and its consumers. There has also to be due consideration given to ensure that whatever technology is deployed the same is socially acceptable and as such the economic viability is justified.

a) Social acceptance

Proper marketing and PR campaign can help consumers opt for prepayment. Non disconnection at odd times i.e. night or Sundays/holidays would negate the inconvenience of having prepayment meters. Customer's control of their disconnection and reconnection automatically will make it easy for them. Consumers aren't often happy about getting a bad surprise when their bills come and would rather be happy for what they pay and use. Customers can budget using the financial information provided by the meters and can thus buy electricity to suit their needs monthly/weekly/daily.

Socially, the concept of prepayment can turn out to be successful only if prepayment metering system is accepted by the society as a whole. Social acceptance is of utmost importance for the successful deployment of this technology and as such its introduction should be strategically planned.

b) Vending Infrastructure

The convenience of payment for electricity in terms of location and denominations of one's own choice helps the customer. Prepay mobile industry has increased the level of customer expectation for recharging their mobile phones. A mobile phone can be recharged by buying cash cards from multiple outlets which are conveniently located. Similarly customers for prepayment metering system would look forward for buying electricity conveniently from number of vending outlets. With the technological advancement they would even prefer to purchase electricity using internet, mobile phones and as such an online system just like the banking system would be preferred. Utility would on the other hand like to have negligible initial investment on the vending infrastructure and may in turn agree to pay a per transaction fee.

c) Systems Integration

Easy system integration between utility systems, customer database and retail cash collection would make the system very popular. Prepay metering system should be capable of supporting multiple tariff options like Time-of-use and Slab tariffs. Additionally the meters should be capable of acting as post paid meters if the need arises thus providing the utility with a future proof solution.

Benefits to Consumers

a) Pay-as-you-go system:

It will allow customer to buy electricity as and when is required by him.

b) No standing in long queues:

The system can provide in future complete flexibility of purchasing electricity via telephone, internet, GSM etc and would thus obviate consumers from standing in long queues for purchasing electricity.

c) Allows the consumer to budget:

The prepaid system will empower customers to understand the cost of energy and thus enable them to budget their usage in accordance with their financial position and lifestyle. Because it is not necessary to pay large bills once a quarter or month they may choose their own timing and frequency of purchasing electricity.

d) Display of remaining credit:

The prepaid meters have the provision to display the actual remaining credit i money value as well as the total kWh consumption. This will put consumers in the position to manage their energy purchase to suit their requirements. Since the meter displays credit instead of energy units it's easy for the consumer to co-relate the tariff with his expenditure.

e) Help become energy conscious:

A large percentage of the populations are often not aware of the effect of abuse of electricity and the environmental impact it has on community. Because both the remaining units and the consumption rate are displayed the consumer can readily adapt to become energy conscious.

f) No disconnection/reconnection:

The prepayment system will naturally remove the need for the Utility to get involved with the unpleasant and often difficult task of disconnecting errant customers. This will lead to direct savings in manpower, transportation and legal expenses.

g) No account queries:

A considerable amount of time is often wasted in rechecking meter readings and statements as a result of queries from customers. This requirement is altogether eliminated.

h) Tamper and fraud detection:

Comprehensive tamper and fraud detection allow phase failures, reverse energy, phase reversal, on power up resets, missing neutrals etc. to be time/date stamped, & reported.

I) Load Control:

The prepaid meter would offer true load control and demand side management.
d) Lifetime costs

The system as a whole should be cost effective to facilitate deployment on a large volume. The economic viability should come from reduced operating costs for the utility, upfront cash collection, reduction in customer complaints, odd hour complaints, failure rate of meters. The system should be cheap and easy to start and scalable for out of area sales.

e) Regulatory acceptance

Honorable regulators can play a very important role in facilitating the introduction of these systems. He can ensure that
- Consumer interests are properly being taken care of in the new system.
- Consumers are being provided incentives (discount/rebates) to opt for prepayment voluntarily.
- Tariff rationalization is done.
- Competition is created in the market so that the system is cost effective.

Experiences in the Indian context

Prepayment Metering System has slowly and gradually started to gain foothold in the Indian Power Sector scenario. Various utilities in India since last few years have embarked upon the journey of Prepayment Metering System with due approval from the Honorable Regulatory bodies. Utilities from Delhi West Bengal, Himachal, Karnataka, Gujarat, Rajasthan, Haryana, UP etc have joined the prepayment bandwagon.

So far the experiences have been for a pilot trial which have been fairly successful though has resulted in surfacing minor problems of moving from a conventional postpaid system to a prepayment system. Importance of Tariff rationalization, system integration etc has cropped up. The issues and concerns are being addressed to simplify the process and necessary steps are being taken to resolve it.

Conclusion

The successful payment system implementation by the utility, as well as the social acceptance among customers coupled with the Regulators support will prove to be a win-win situation for all the stakeholders. The payment system brings potential advantages with it, but there are certain issues which have to be addressed when moving from a conventional post paid system to a prepayment system so that its introduction on a large scale proves to be beneficial to all the concerned.