Prepayment Metering System in India – An Overview

The Government of India has set a mission of “power for all by 2010”. In order to achieve this, expansion of the regional transmission network and inter-regional capacity to transmit power would be essential. All over the world, power communities have realised that the capacity addition alone is not a solution to bridge the ever-widening gap between demand and supply. Reductions in energy demand and consumption by the end user can free up electricity generation, transmission and distribution capacity at a fraction of the cost required to provide new capacity.

Despite the growth in supply, distribution companies are struggling to overcome chronic power shortages and poor power quality. With demand exceeding supply, severe peak and energy shortages continue to plague the sector. Inefficiencies in power generation, distribution and end-user systems exacerbates the shortages. Another problem faced by the utilities is poor finances, Poor revenue collection and collection inefficiencies are instrumental in the poor financial condition of the state electricity boards or their successor entities.

The historic problems of the Indian distribution companies can be traced to the root issues:

- Poor revenue cash flow
- Huge overheads
- Unmanaged peak Load / Demand
- Large commercial losses due to poor billing

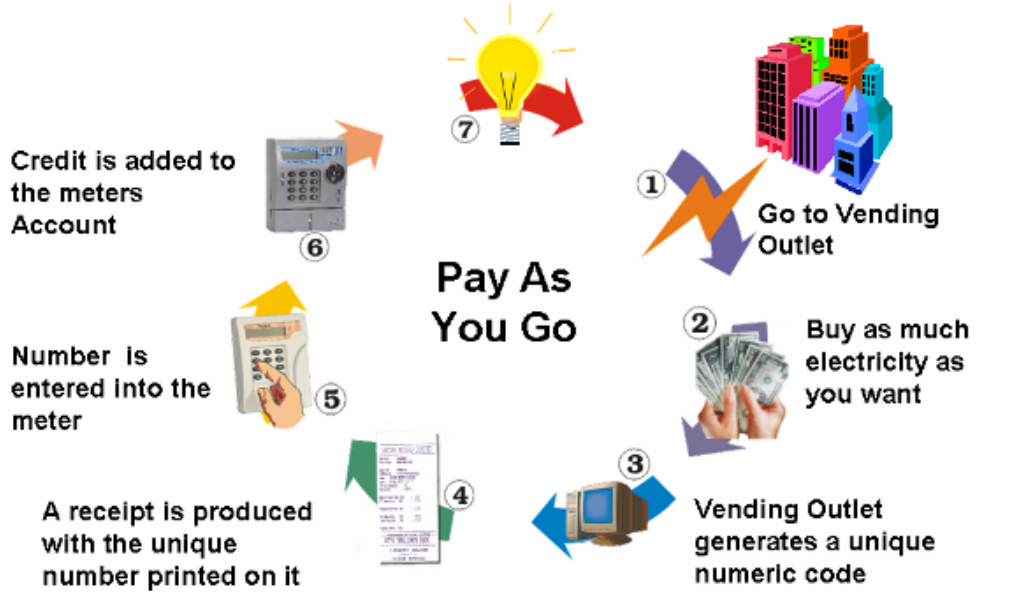
State utilities have been striving hard to improve revenue collection and manage load and demand so that they can extend the best possible support to their customers. A major omission is the neglect of demand-side management (DSM) opportunities in India. Demand side management improves quality of supply and strengthens the electrical system, resulting in higher consumer satisfaction.

Another problem faced by the utilities is the huge overhead of meter reading, billing, bill distribution, payment collection, warning to defaulters disconnections and handling consumer grievances. These activities involve considerable amount of time and effort, which add to the already high overheads. Implementation of prepayment metering can play a major role in resolving the problems.

Prepayment metering is simple and user friendly. Prepayment or “pay as you go” has been accepted by the utilities worldwide as a way to improve customer service, cash flow and the revenue cycle. It is altogether a new arena in India and is likely to be important for revenue and energy management. This will benefit the State Electricity Boards (SEBs), private utilities and the electricity consumers.

The consumer has a new kind of meter installed in his/her house along with an in-home display device (IHD) / consumer interface unit (CIU) which helps them in monitoring their consumption, load and money balance.

To charge the meter, consumer needs to buy electricity in advance according to his/her requirement. The consumer can buy electricity through various vending options. The vend results in a token with a code printed on it. The consumer punches the code into the meter either directly or through an in-home display using a key pad. The meter is credited with the amount of credit bought and supply is switched on automatically at load side.



As the consumer's balance reaches the emergency limit provided by the utility, meter sends an alarm. The consumer needs to recharge the meter at this point. If recharged in time then the load is not disconnected. However, if even after warning, a consumer does not recharge their meter and all available balance is exhausted (as per the prevailing tariff defined in the meter) and there are no **"Friendly Credit Days / Friendly Credit Hours"** then meter automatically disconnects the supply at load side.

The system provides real time consumption information in terms of money and connected load. which attracts the consumer's attention and leads to their involvement with the system. This also helps consumer in identifying their connected load at any given point of time and their consumption in terms of rupees. The system provides many features; few of them are listed below:

I. Any time any where recharge facility: This becomes possible as the system works on keypad based technology, hence the token can be got by vend through phone, SMS or web at any time and at any place.

II. Friendly days / hours: For the ease of the consumer as well as of the utility, the system is designed in such a manner that it will not disconnect the supply or will not give any alarms on predefined day or hours. These days or hours are called friendly days or hours.

III. Emergency credit limit: To make the consumer aware that their credit will be exhausted within a specified time interval, the system has a provision of emergency credit limit. This is an optional feature, which depends upon the utility, they may chose to configure it or not.

IV. Alarms visual / buzzer: To attract the consumer's attention the meter gives an alarm to consumer regarding the actions it will be taking. This is a buzzing alarm as well as a visual display on meter/CIU. This enables consumer to take necessary action.

V. Supports a variety of tariffs: The Indian tariff structure is complex and there are a variety of tariffs like slab rate, TOD / TOU, fixed charge, monthly minimum charge, etc. All tariffs are supported by the system.

The system is equally beneficial both for consumers and the utilities.

Benefits to Consumer:

a) Pay-as-you-go
b) No need to stand in queues
c) No surprise billing
d) No billing disputes
e) Allows consumer to budget electricity expenses
f) Helps consumer to contribute towards energy conservation

Benefits to Utility:

a) Up front payment for electricity
b) Lower overheads
c) No billing hassles
d) No disconnection/ reconnection
e) Tamper and fraud detection
f) Money and time based load connection / disconnection
g) Load / Demand Control
   Sanction load,
   High / over current and
   High / over Voltage.

Prepayment Metering is slowly and gradually gaining a foothold in the Indian Power Sector. Various utilities in India have embarked upon this journey with approval from the Regulatory bodies. New Delhi Power Ltd (NDPL), JUSCO, West Bengal State Electricity Distribution Co. Ltd (WBSEDCL), Himachal Pradesh State Electricity Board (HPSEB), BESCOM, Gujarat, Rajasthan, UHBVN etc have all joined the prepayment bandwagon.

NDPL was the first private utility to introduce the system for domestic consumers whereas WBSEDCL was the first State Electricity Board to have gone for prepayment. At present many other utilities like BRPL, BYPL, BESCOM, CESC, HPSEB, Assam Distribution Company, etc are using the prepayment metering system. So far the experiences from the trials have been fairly successful. They have brought to the fore minor problems of moving from a conventional post-paid system to a prepayment system and few major ones such as tariff rationalisation.

Realising the benefits of prepayment system, the Delhi State Government has made it mandatory for all its offices in the year 2007. As per the order of Delhi State Government all Government Consumers under Delhi State Government with Single or Three Phase connections and a maximum load up to 45 kW were to be shifted from post-paid meters to advanced keypad based pre-paid meters. The Delhi State Regulator (DERC) also came forward in support of prepaid meters and announced a 2% rebate on the tariff for pre-paid consumers.

Not only with the state utilities but also in the real estate business, prepayment metering system has become a preferred choice for most builders. Builders don't have to chase for payments and consumers are happy to have a complete control over their connection and disconnection.

Looking at the benefits the system provides, there is a need to give it a policy support and implement it on a large scale all across. A simplified tariff structure will make life much easier for the utilities, the supplier and the consumer .

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