# POWER TRAIFF TYPES

Energy Rates or Power Tariffs are the different methods of charging the consumers for the consumption of electricity. It is desirable to charge the consumer according to his maximum demand (kW) and the energy consumed (kWh).

1. Flat demand rate

In this type of charging, the charging depends only on the connected load and fixed number of hours of use per month or year.

This can be given by the following equation $E = Ax$

Flat demand rate
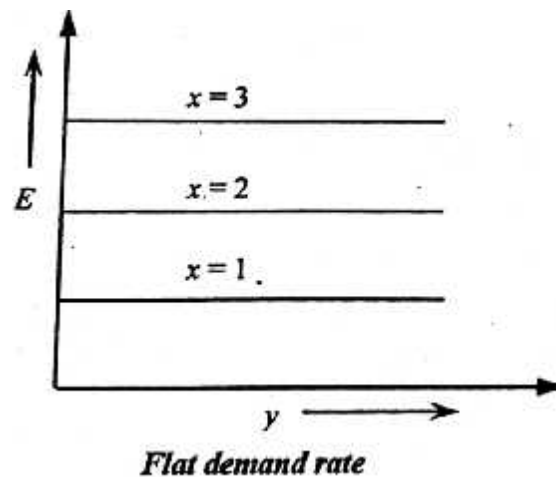
Here no metering equipments and manpower are required for charging. In this system, the consumer can theoretically use any amount of energy upto that consumed by all connected loads. The unit energy cost decreases progressively with an increased energy usage. The variation in total cost and unit cost are shown in fig.

2. Straight line meter rate

This type of charging depends upon the amount of total consumed by the consumer. The bill charge is directly proportional to the energy consumed by the consumer.

This can be represented by the following equation $E = By$

The major drawbacks of this system are:

1. In this type of system, the consumer using no energy ay any amount although he has incurred some expenses to the power station

2. The rate of energy is fixed, therefore this method of does not encourage the

consumer to use more power.

The variation in total cost and unit consumed are shown in the figure.

Straight meter rate
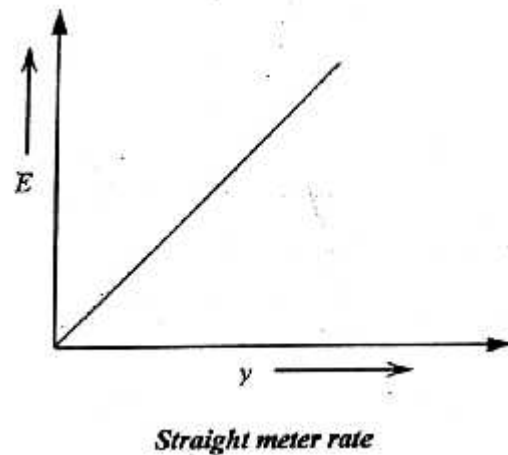
3. Block meter rate

In previous straight line meter rate the unit charge is same for all magnitudes of energy consumption. The increased consumption spreads the item of fixed charge over a greater number of units of energy.

Therefore, the price of energy should decrease with an increase in consumption. The block meter rate is used to overcome this difficulty.
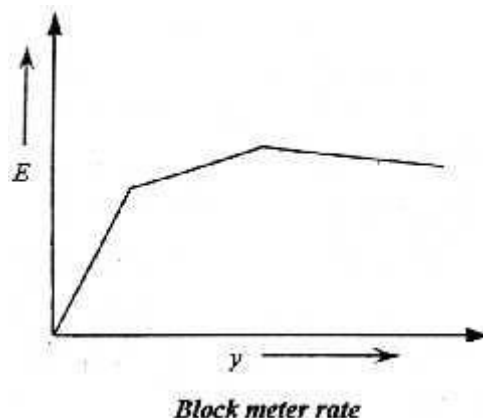
This method of charging is represented by the equation.

$E = B_1y_1 + B_2y_2 + B_3y_3 + \ldots\ldots$

Where, $B_3 < B_2 < B_1$ and

$(y_1 + y_2 + y_3 + \ldots\ldots) = y$ (total energy consumption)

The level of **y_1 , y_2 , y_3 ......** is decided by the government to recover the capital cost, In this system, the rate of unit charge decrease with increase in consumption of energy as shown in fig.


Block meter rate

4.Hopkinson demand rate or two part tariff

In this method of charging depends upon the maximum demand and energy consumption. This method is proposed by Dr.' John Hopknson in 1982.

This method of charging is represented by the equation $E = A + By$.

In this method two meters are required to record the maximum demand and the energy consumption of the consumer. This method is generally used for the industrial consumers. The variation in total cost with respect to the total energy consumption taking x as parameter is shown in fig.

Hopkinson method of charging
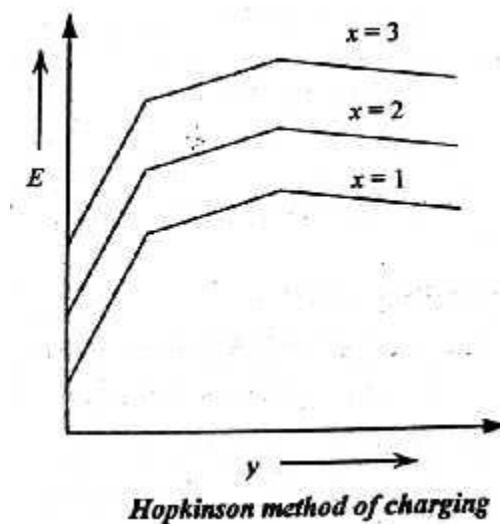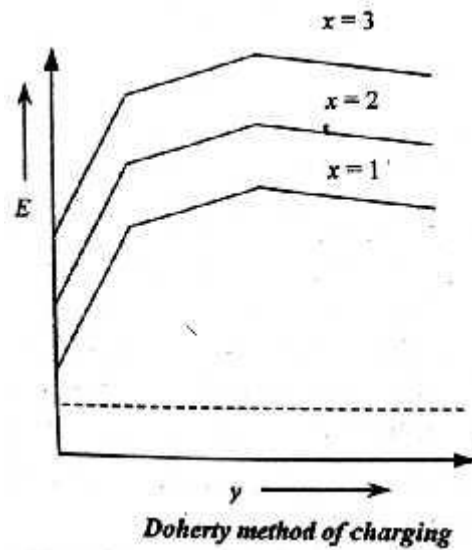
5. Doherty rate or three part tariff

This method is proposed by Henry L. Doherty. In this method of charging, the consumer has to pay some fixed amount in addition to the charges for maximum demand and energy consumed. The fixed amount to be charged depends upon the occasional increase in prices and wage charges of the workers etc.

This method of charging is expressed by the equation $E = Ax + By + C$.

This Doherty method of charging is most commonly used in Tamilnadu and all over India. In this method the customers are discouraged to use more power when the generating capacity is less than the actual demand.

For example, for the first 50kW-hr units the charging rate is fixed as, say, Rs. 2.5/Kw-

hr and if it exceeds than this charge is rapidly increased as Rs. 3.5/kW-hr for next 100 kW-hr units (i.e from 51Kw-hr to 150kW-hr). This method is unfair to the customer, but very common in India and many developing nations.

Doherty method of charging

The variation in total cost with respect to the total energy consumption taking x as parameter is shown in fig.