



TARIFF

PRICE





TARIFF

# What is Tariff



## # Objective of Tariff



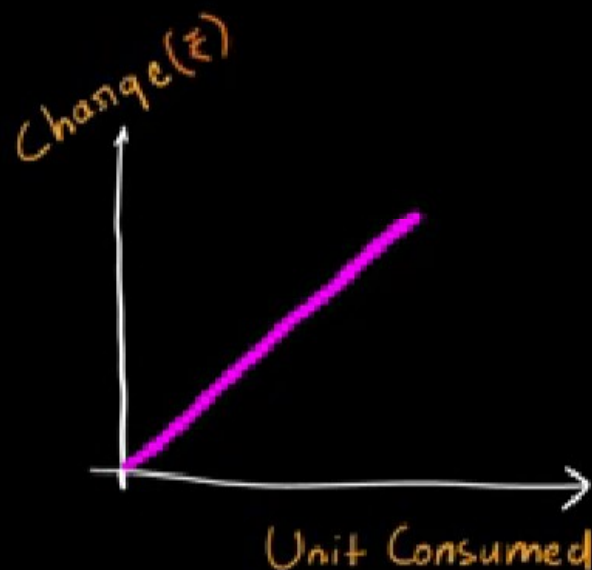
## # Types of Tariff

1. Simple
2. Flat rate
3. Block Rate
4. Two Part
5. Three Part
6. Power Factor
7. Maximum Demand

## 1. Simple Tariff




**FIX** Rate of per unit energy consumed



eg. 1 unit  $\rightarrow$  1 ₹ **FIX**  
irrespective of Load Type

  
consume 100 units

Bill = 100 ₹

  
consume 500 units (x)

Bill = 500 ₹

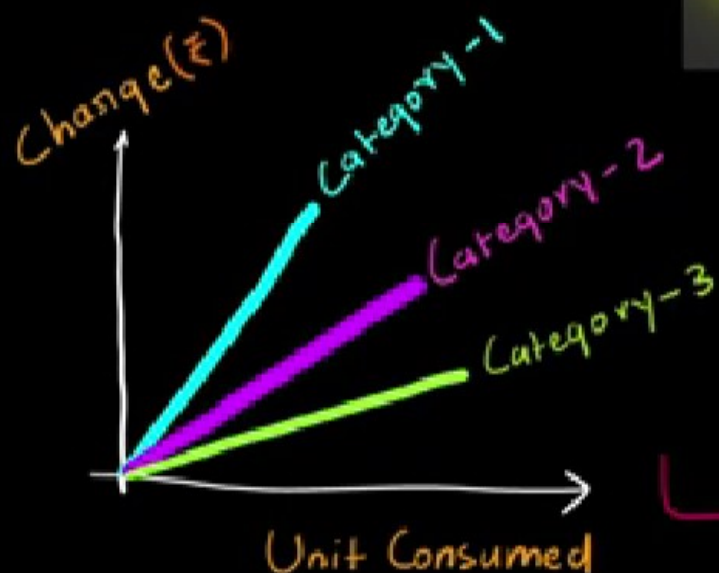
Tariff doesn't change with change in no. of units consumed.

Ignore the amount of units consumed



## 2. Flat Rate

Fix Rate for specific category of load

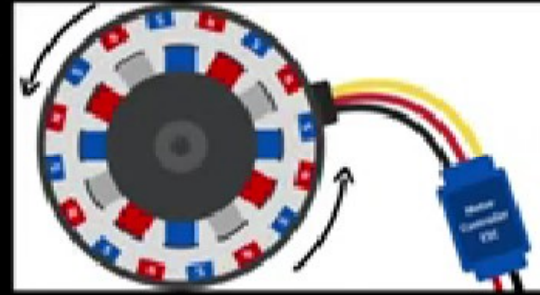


Load

Light load



Power load

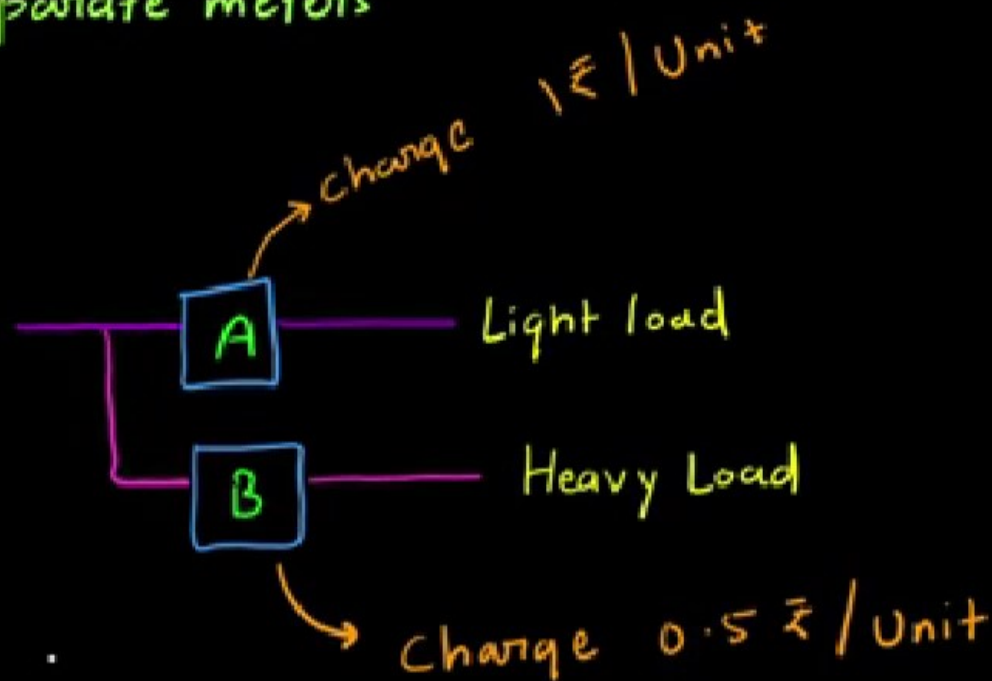


Fix Rate = 1 ₹/Unit

Fix Rate = 0.5 ₹/Unit

## Disadvantages

① Need separate meters



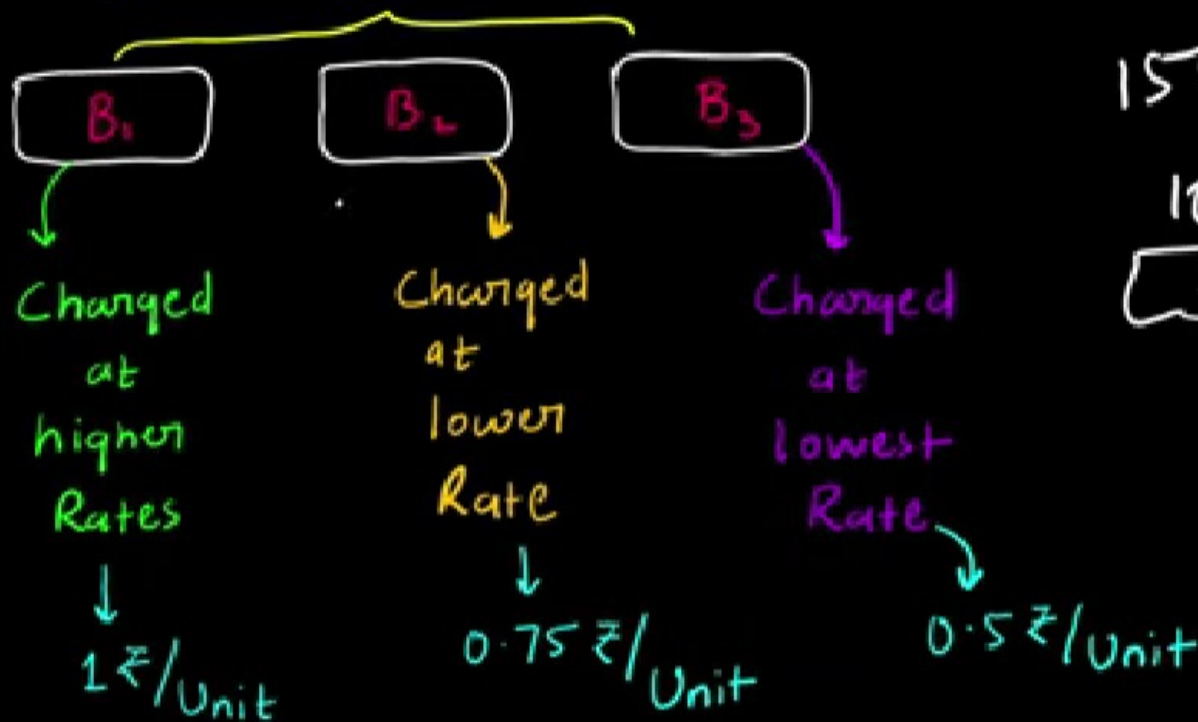
② Ignore the amount of energy consumed



### 3. Block Rate

Electric Energy Units Consumed

Blocks of energy units



250

50

$$50 \times 1 = 50$$

150

$$100 \times 1 = 100$$

$$\boxed{50 \times 0.75} = \frac{37.5}{137.5}$$

$$100 \times 1 = 100$$

$$100 \times 0.75 = 75$$

$$50 \times 0.5 = 25$$

200

280 units.

<del>Block</del>	→	200 ₹
→ Flat	→	212.5 ₹
∴ Simple	→	250 ₹



### 3. Block Rate

Electric Energy Units Consumed

Blocks of energy units

$B_1$

Charged at higher Rates

$1 \text{ ₹/Unit}$

$B_2$

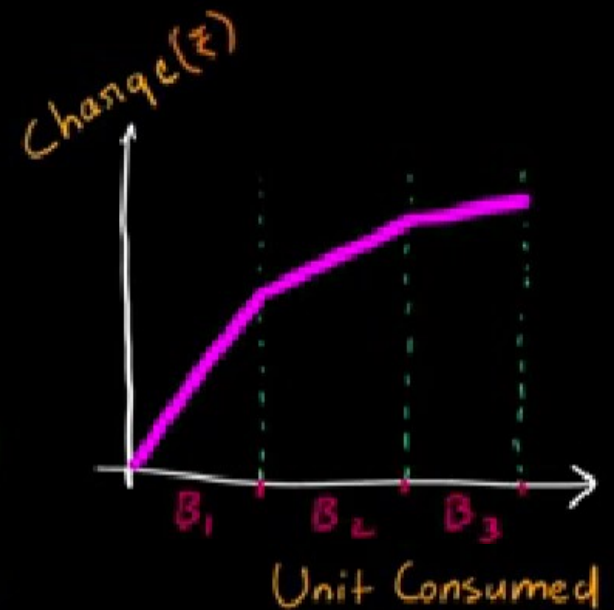
Charged at lower Rate

$0.75 \text{ ₹/Unit}$

$B_3$

Charged at lowest Rate

$0.5 \text{ ₹/Unit}$



1. Simple Tariff
2. Flat rate Tariff
3. Block rate Tariff

Running charges

No. of units  
consumed by the  
consumer



Design



Power  
Consumption  
Curve

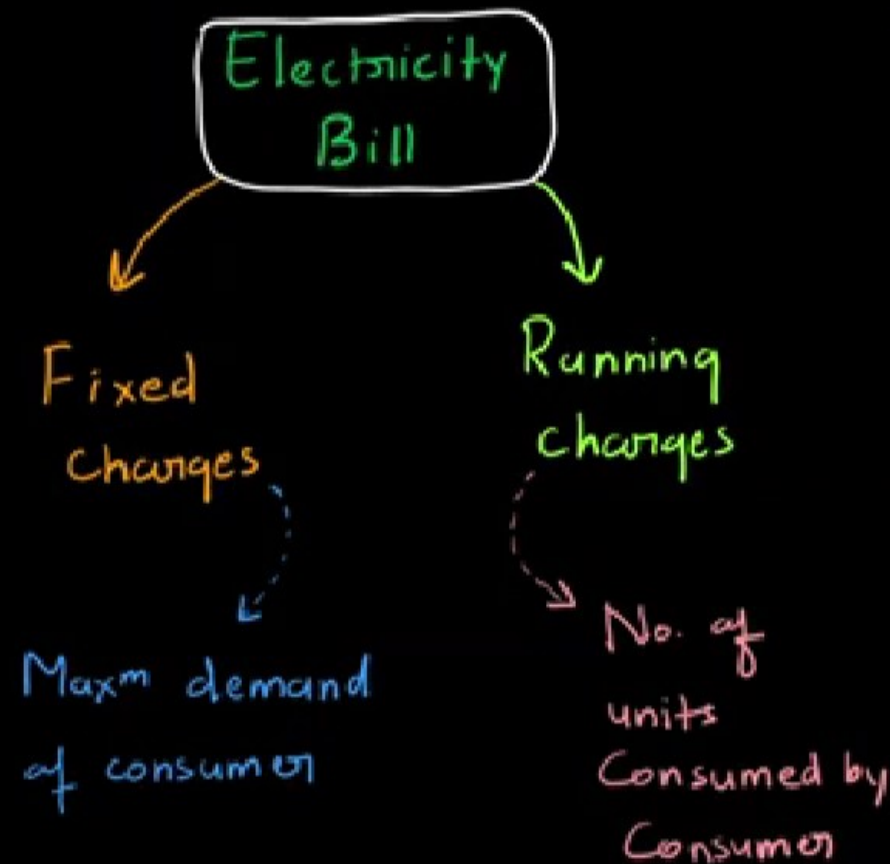
Size of  
Power Plant

depends on  
maximum Demand



TWO & THREE PART TARIFF

#### 4. Two - Part Tariff



#### Mathematically

$$\begin{array}{lcl} \text{Total} & = & \text{Fixed} + \text{Running} \\ \text{Charges} & & \text{charge} \quad \text{charge} \\ & & \downarrow \quad \downarrow \\ & & b.kW \quad c.kWh \end{array}$$

$$\therefore T = \underbrace{b.kW}_{\text{Part-1}} + \underbrace{c.kWh}_{\text{Part-2}}$$

Named as 2-Part  
Tariff



## # How This System Affects The Consumer

Case: 1 : Consumer use certain Units

$$\text{Bill} = \text{Fixed charge} + \text{Energy unit Consumed} = 130 \text{ ₹}$$

Based on your  $\swarrow$  max<sup>m</sup> demand      30 ₹      100 ₹

Case-2 : Consumer is out of station

$$\text{Bill} = \text{Fixed charge} + \text{Energy unit Consumed} = \boxed{30 \text{ ₹}}$$

30 ₹      0

\* "Recovers fixed charges, irrespective of energy consumed"

Advantage for utilities

Disadvantage for consumer

\*  $\text{Bill} = \text{Fixed Cost} + \text{Running Cost}$

Decided by

maximum demand  
of consumer

ERROR

depends on Rooms, AC,  
Fan, People living .....

10 ₹

30 ₹

## 5. Maximum Demand Tariff



MDI

Maximum Demand Indicator

Similar to 2-Part Tariff

$$\text{Bill} = \boxed{\text{Fixed charge}} + \text{Running charge}$$

Maximum demand  
Calculation

Maximum Demand Meter

2-Part Tariff } Covers Running + Generating Station  
Maximum demand Tariff } Sizing cost

## PROBLEM

3-PART  
TARIFF

Cost of  
Land



Cost of Labor

Interest  
on  
Capital

## 6. Three Part Tariff

Electricity bill is  
divided into 3 Parts

Used In  
India

$$\text{Bill} = A + B \cdot \text{kW} + C \cdot \text{kWh}$$

Fixed  
Charge

Charge based  
on maximum  
Demand

Charge based  
on per unit  
energy consumed

Covers capital,

Labor, depreciation cost → Independent from max<sup>m</sup> demand and  
amount of energy consumed





$$\text{BILL} = A + B.kW + C.kWH$$



1. Simple Tariff
2. Flat rate Tariff
3. Block rate Tariff

Based on  
Running charges

4. Two Part Tariff
5. Maximum demand Tariff
6. Three Part Tariff

"Fix  
rate"

Based on  
Running + Maxm demand

"What about REACTIVE POWER"

POWER  
FACTOR  
TARIFF



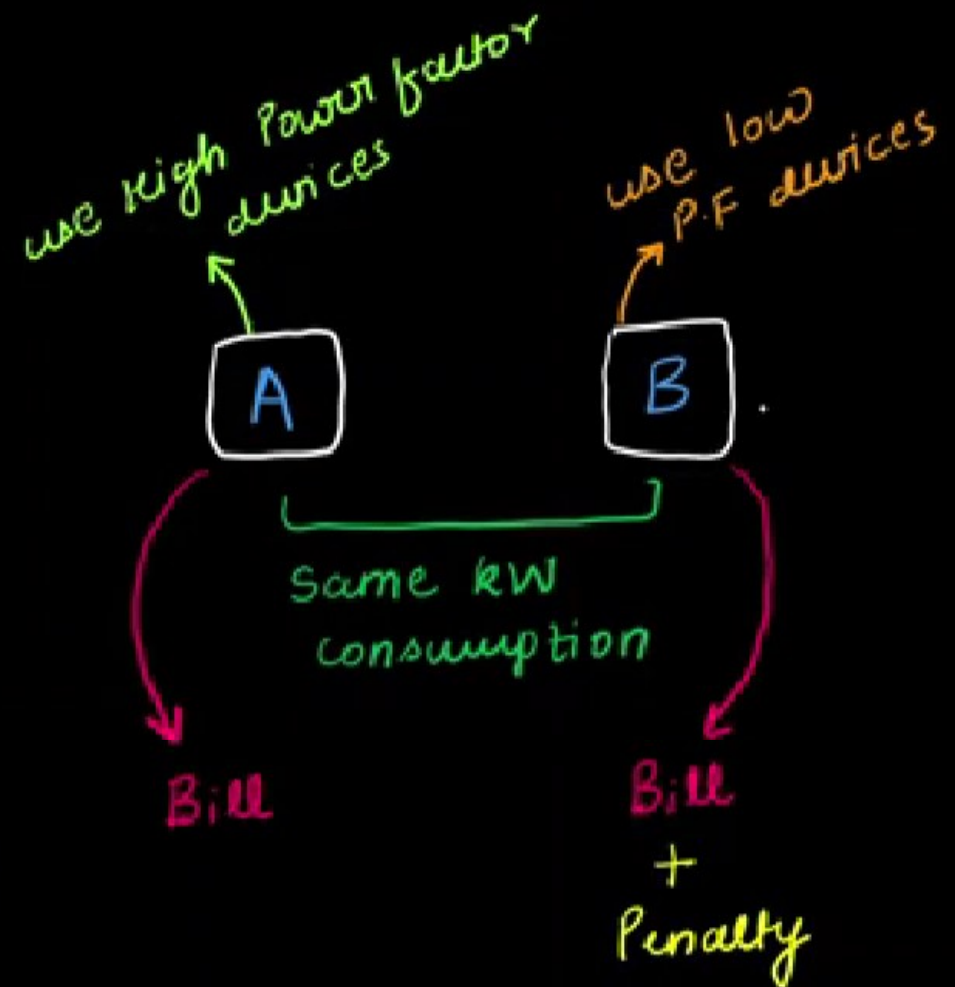
POWER FACTOR TARIFF

## 7. Power Factor Tariff

Power Factor of consumer's load is taken into consideration

\* 3 ways to include P.F in Tariff.

1. kVA maximum demand Tariff
2. Sliding scale Tariff
3. kW and kVAR Tariff



# 1. kVA maximum demand Tariff

"This modification encourage consumer to use High P.F appliances"

2 Part Tariff = Fixed charge + Running charge

B. kW

C. kWh

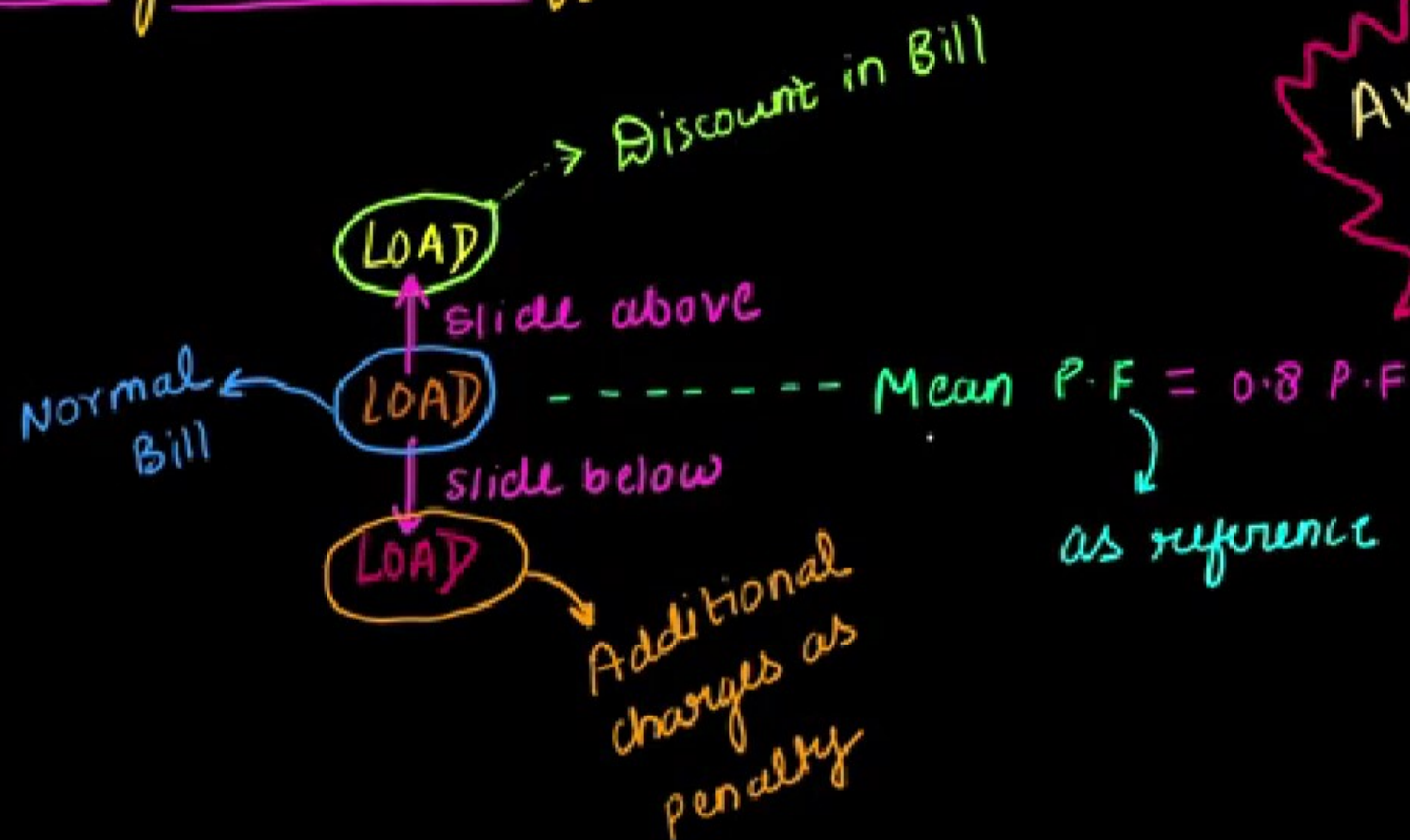
B. kVA

HIGH TARIFF  
↑ B. kVA

as  $P.F = \frac{P}{S} = \frac{kW}{kVA} \propto \frac{1}{kVA}$

low P.F → High kVA

## 2. Sliding scale Tariff



### 3. kW and kVAR Tariff

Both active (kW)  
and Reactive Power (kVAR)  
are charged separately

