

## **In-House Paper on the implementation of Single Part Tariff in Power Distribution**

### **Background:**

Tariff Introduction: Tariff is the price Structure at which electricity is sold to the consumers. There are various types of tariff structures followed in electrical distribution system for supply of electricity and the brief description of the various tariff structures is as under:

1. Simple Tariff: In this tariff structure, there is a fixed rate per unit for electricity consumed; there is no slab system and no discrimination among the consumers in such tariff structure.
2. Single Part Tariff: In this tariff structure, different types of consumers are charged at different uniform rates per unit.
3. Two-part Tariff: In this tariff structure, combination of fixed charges based on contracted load/demand or per connection and variable charges based on energy consumed is collected to recover the cost of electricity
4. Maximum demand Tariff: This tariff structure is same as two part Tariff, only difference is fixed charges based on maximum demand as recorded in the meter installed in the premises of the consumer
5. Power factor Tariff: In such type of Tariff structure, power factor is taken into account while billing to consumers.
6. Three-Part Tariff: This Tariff is the combination of fixed charges, semi fixed charges, and variable charges.
7. TOD Tariffs: In such type of Tariff, variable rate of energy charge is levied during different time zones in a day.

### **History of evolvement of Tariffs in India:**

- Prior to 1992-
  - Single part Tariff Cost plus on actual (Schedule 6 of Electricity (Supply) Act, 1948)

A system of single-part tariffs was in vogue in India for pricing of thermal power prior to 1992. The single-part tariff for a station was calculated to cover both the fixed cost as well as the variable (energy) cost at a certain (normative) generation level.

#### **Demerit:**

1. Energy production above the normative generation level yielded additional revenue, i.e., a surplus over the fixed and variable cost of the station.

2. The incentive and disincentive for power generation got linearly linked to the annual Plant Load Factor (PLF) of the generating station.

- Since 1992 to 2001-
  - For State Electricity Boards (SEBs)- Single/Two-part Cost plus on actuals
  - For Central Power Sector Units (CPSUs)&Independent Power Producers(IPP)- Two part Cost Plus with performance based rate making (K. P. Rao Committee)

Finding that the single-part tariff, particularly for Central Generating Stations, was conducive neither to economic generation of power as per merit-order, nor to satisfactory operation of the regional grids, in 1992 the Government of India adopted a two-part tariff formula for NTPC stations based on the recommendations of the K. P. Rao Committee.

Recognizing that there would be no motivation on the part of NTPC (Central Generating Stations) to maintain a high level of efficiency and availability if it was paid the full fixed cost irrespective of level of generation and variable cost for the quantum of energy actually generated, the K.P. Rao Committee had recommended a scheme of incentive/disincentive, as a variant of a simple two-part tariff. The scheme provided for linking of incentive and disincentive with Plant Load Factor (PLF) plus deemed generation, which in effect is Plant Availability if deemed generation is equal to difference between Plant Availability and Plant Load Factor.

- Since 2001 to 2003-
  - For SEBs- Single/Two-part Cost plus on actuals
  - For CPSUs & IPPs- Availability Based Tariff (ABT) Cost Plus with performance based rate making (CERC Regulations)
- Since 2003 onwards-
  - Availability Based Tariff (ABT) Cost Plus with performance based rate making
  - Competitively Bid Tariff

#### **Historical Background of Legislative Initiatives in India:**

- The Indian Electricity Act,1910
  - Provided basic framework for electric supply industry in India.
  - Growth of the sector through Licensees. Licence issue by State Govt.

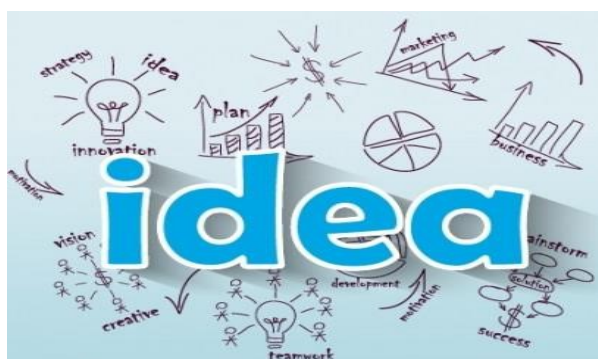
- Provision for licence for supply of electricity in a specified area.
- Legal framework for laying down of wires and other works.
- Provisions laying down relationship between licensee and consumer
- The Electricity (Supply) Act, 1948
  - Mandated creation of SEBs.
  - Need for the State to step in (through SEBs) to extend electrification (so far limited to cities) across the country.
  - Main amendments to the Electricity (Supply) Act, 1948
    - Amendment in 1975 to enable generation in Central Sector.
    - Amendment to bring in commercial viability in the functioning SEBs – Section 59 amended to make the earning of a minimum return of 3% on fixed assets a statutory requirement (w.e.f. 1.4.1985).
    - Amendment in 1991 to open generation to private sector and establishment of RLDCs.
    - Amendment in 1998 to provide for private sector participation in transmission, and also provision relating to Transmission Utilities.
- The Electricity Regulatory Commissions Act, 1998
  - Provision for setting up of Central / State Electricity Regulatory Commissions with powers to determine tariffs.
  - Constitution of SERC optional for States.
  - Distancing of Government from tariff determination.
- The Electricity Act, 2003
  - The Electricity Bill, 2001 was introduced in Lok Sabha on 30th August, 2001 and was subsequently referred to the Standing Committee on Energy for examination and report. The Standing Committee submitted its report on 19th December, 2002. Based on the recommendations of the Standing Committee on Energy, the Government of India moved certain amendments. The Electricity Bill, 2001 along with these amendments, was passed by Lok Sabha on 9th April, 2003.

- The Bill as passed by Lok Sabha was considered and passed by Rajya Sabha on 5<sup>th</sup> May, 2003. The Electricity Bill, 2003 as passed by both Houses of the Parliament received president's assent on 26 May, 2003 and was notified in the Gazette of India on 2<sup>nd</sup> June, 2003. The Provisions of the Act except Section 121 were brought into force with effect from 10<sup>th</sup> June 2003.

### Status in Uttar Pradesh:

In the State of Uttar Pradesh, two-part tariff has been in vogue since quite some time. Two-part tariff basically comprises fixed charge and energy charge. Fixed charges are levied towards the recovery of certain portion of fixed component of power purchase costs, network cost, operations and maintenance cost, and energy charges are recovered mainly towards cost of power purchases. The consumer is also liable to pay a minimum consumption guarantee, if his bill is below a certain minimum.

However, there have been concerns that the fixed charges are recovered at the same flat rate from consumers whether they get more hours of supply or less hours of supply. Also, the Discoms charge penalty for exceeding the contracted demand while the discount for lesser use of the contracted power is rarely available to them. Also, the complaint is that utilities unilaterally increase the contracted load of the consumers to get more revenue through fixed cost, which is on per kW basis. Further, billing for the consumers is very complex and many a times, beyond the comprehension of the average consumer. It appears that the concept of two-part distribution tariff was directly borrowed from the two-part tariff regime of power generators, most of whom had come through the cost-plus regime of the MOU route. As the generation has now mostly moved towards the bidding route and grid infrastructure is also continuously stabilizing in the whole country, there seems to be now the time for introducing single-part tariff. The single-part tariff with some minimum charge could be simpler, more rational and easily understandable regime which is not only consumer friendly but also takes into account the Discom's interest. It may be worthwhile to mention that most of the infrastructure utilities providing services, like Telecom, Railways, Road transport, Airlines, etc. have only single part tariff.



**Why not to have a Single Part Tariff structure with MC(Minimum Charge)?**

**This will make the consumers pay for what they consume.**

## Merits and De-merits of Single Part Tariff structure with Minimum Charges

Merits	Demerits
<ol style="list-style-type: none"> <li>1. It is easier to understand for the consumers.</li> <li>2. The tariff will be so designed as to by and large recover fixed costs of the Licensee also.</li> <li>3. It will motivate the Discoms to improve their services as no fixed costs shall be recovered from the consumers during power outage.</li> <li>4. The grievance that a section of consumers are getting lesser number of hours of supply but are paying the same fixed charges as for the consumers getting 24 hours of supply will be addressed. However, in view of such grievance, the Commission in its Tariff Order for FY 2016-17 has directed the Licensees to submit a proposal for “Rate Schedule” linked to number of hours of supply at the time of ARR filing of FY 2017-18.</li> </ol>	<ol style="list-style-type: none"> <li>1. The Distribution Utility will still have to maintain/ capture the parameters (MD, PF, etc.)</li> <li>2. Single-Part Tariff structure with minimum charge leads to inefficient use of electricity as minimum charge may discourage the conservation of energy.</li> <li>3. May lead to inefficient operation of the distribution utilities if the present and proposed fixed cost of the Generating Companies / Distribution Utilities is not fully recovered.</li> <li>4. Effective Grid management &amp; efficient grid operation will be affected due to improper load profile and management of the system.</li> <li>5. May be difficult to regulate the over-drawal by exceeding contract demand.</li> </ol>

### **Proposed Design:**

#### **For LMV-1 – Others – Urban Consumers:**

The existing Two Part tariff for LMV-1 (c) Other Metered Domestic Consumers is as follows:

“2. **Others:** Other than life line consumers (i.e. consumers who do not qualify under the criteria laid down for lifeline consumers.)

Description	Consumption Range	Fixed Charge	Energy Charge
All loads	For first 150 kWh / month	Rs. 90.00 / kW / month	Rs. 4.40 / kWh
	For next 151 - 300 kWh / month		Rs. 4.95 / kWh
	For next 301 – 500 kWh / month		Rs. 5.60 / kWh
	For above 500 kWh / month (Starting from 501 <sup>st</sup> unit)		Rs. 6.20 / kWh

.....”

The **Single Part tariff with minimum charges** for LMV-1 (c) could be as follows:

Description	Consumption Range	Energy Charge	Minimum Charge
All loads	For first 150 kWh / month	Rs. 5.00 / kWh	Rs. 325/kW/Month
	For next 151 - 300 kWh / month	Rs. 5.60 / kWh	
	For next 301 – 500 kWh / month	Rs. 6.15 / kWh	
	For above 500 kWh / month (Starting from 501 <sup>st</sup> unit)	Rs. 6.65 / kWh	

\* The rates are approximate and could be varied so as to make it tariff neutral for the consumers and the Discoms

**For LMV-2 – Others – Urban Consumers:**

The existing Two Part tariff for LMV-2 (c) Other Metered Domestic Consumers is as follows:

(b) In all other cases, including urban consumers and consumers getting supply through rural feeders but exempted from scheduled rostering / restrictions or through co-generating radial feeders in villages / towns.

Contracted Load	Fixed Charge
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Contracted Load	Fixed Charge
Up to 2 kW	Rs. 225.00 / kW / month
Above 2 kW to 4 kW	Rs. 275.00 / kW / month
Above 4 kW	Rs. 355.00 / kW / month

Consumption Range	Energy Charge
For first 300 kWh / month	Rs. 6.70 / kWh
For next 301 – 1000 kWh / month	Rs. 7.75 / kWh
For above 1000 kWh / month (Starting from 1001 <sup>st</sup> unit)	Rs. 7.95 / kWh

Note: Minimum charge (as defined under Clause 20 of General Provisions) payable by a consumer under the category “(c) In all other cases” shall be Rs. 500 / kW / month (From April to September) and Rs. 375 / kW / month (From October to March).

The **Single Part tariff with minimum charges** for LMV-2 (c) could be as follows:

Consumption Range	Energy Charge
For first 300 kWh / month	Rs. 7.20 / kWh
For next 301 – 1000 kWh / month	Rs. 8.65 / kWh
For above 1000 kWh / month (Starting from 1001 <sup>st</sup> unit)	Rs. 8.95 / kWh

**Note:** Minimum charge payable by a consumer under the category “(c) In all other cases” shall be Rs. 500 / kW / month (From April to September) and Rs. 375 / kW / month (From October to March).

\*The rates are approximate and could be varied so as to make it tariff neutral for the consumers and the Discoms.

**Note:**

1. Minimum charge is the charge in accordance with the tariff in force from time to time and come into effect only when sum of fixed / demand charges and energy charges

are less than a certain prescribed amount, i.e., Minimum Charges. For each month, consumer will pay an amount that is higher of the following:

- Fixed / Demand charges (if there are any) plus Energy Charge (if there are any) on the basis of actual consumption for the month and additional charges such as Electricity Duty, Regulatory Surcharges, FPPCA Surcharges and any other charges as specified by the Commission from time to time.
- Monthly minimum charge as specified by the Commission and computed at the contracted load and additional charges such as Electricity Duty, Regulatory Surcharges, FPPCA Surcharges and any other charges as specified by the Commission from time to time.

2. It can be explored to implement such design for other consumer categories also.

**You are requested to send your valuable comments & suggestions on the above concept, including the tariff design by December 31, 2016 through email to [secretary@uperc.org](mailto:secretary@uperc.org) or by post -**

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