

SECTION 9: PRINCIPLES OF TARIFF DESIGN

9.1 Tariff design refers to the design of the structure and components of the charges applicable to consumers. An optimal design effectively recovers all the costs incurred while supplying energy to the consumer or class of consumers and at the same time promotes efficient usage of Electricity. A Tariff design exercise has some important principles and the commission deems it beneficial to reiterate them for the Licensees and wider awareness amongst consumers.

Cost Recovery

9.2 An effective Tariff Design exercise should ensure that the prudent costs incurred by the utility should be recovered and that there is no scope for under recovery of the Fixed, Variable and Customer related costs of the delivered energy. As per the costs allowed by the Commission, roughly 70 % of the total costs incurred to supply electricity to the ultimate consumer are fixed in nature i.e. they shall be incurred irrespective of the supply of electricity. However the licensee barely recovers 20% of his total charges as Fixed or Demand related charges. This intrinsic defect also allocates larger amount of risk to the licensee. In the event that the projected sales do not materialise then ASEB will see a drastic reduction in revenues and profitability because there will be only a marginal reduction in costs.

Tariffs reflecting Cost causation

9.3 It is well recognised that there is a variation in the costs of the power procured at different times of the day and at different seasons. Further, it is also recognised that costs of the power delivered would be different depending upon the nature of usage and the class of consumers too. Network costs involved (for the delivery of power) would also be different for different consumers. Hence prudently, in the scenario of a full cost recovery, the consumers should be charged a tariff that recovers the costs he is responsible for. ToD and Seasonal Tariffs are manifestations of this principle as is the difference in Fixed charges and Energy charges for different categories of consumers. In the near future the Commission would like the licensees to conduct a study to voltage based cost of supply that would indicate the actual cost of supply to particular consumer categories and file it separately to the Commission. This study would also be critical in the determination of cross subsidy between categories.

9.4 The Commission recognises that the elimination of cross subsidy and shift to full cost tariffs will encourage the efficient usage of energy. However the elimination of cross subsidy cannot be achieved immediately and the Commission expects that the natural load growth coupled with the efficiency improvement measures will aid the pace of cross subsidy reduction without jeopardising the financial viability of the licensees and causing tariff shock to consumers.

Incentivisation for Efficient Usage and Good Commercial Behaviour

9.5 The Commission recognises that an incentivised tariff design can promote efficient usage of power by the consumers and also promote healthy commercial behaviour from consumers. Hence the Commission has sent clear signals in the tariff design by the creation of new categories and new slab structures.

Promotion of Environmentally sustainable behaviour

9.6 The Commission realises that energy from non renewable energy can have a very benign effect on the power system and the state of Assam in general, apart from a reduction in power procured from the Grid and more purchases from conventional sources. Hence it has introduced incentives for consumers for the use of devices like solar water heaters. The details will be elaborated in the appropriate section.

Voltage Based Categorisation

Voltage Based Categories:

9.7 The existing tariff schedule does not have a Division of categories as per the supply voltage. This division is important both from the commercial and technical points of view. The Commission also intends to move towards a more rational cost of service approach for the fixation of tariffs as envisaged in the Electricity Act and would like to start with voltage based categorisation of consumers. Hence the Commission felt it necessary to clearly define and distinguish the existing categories into two broad groups in term of supply voltage taking into consideration capacity of the consumers in terms of connected load as well as the nature of use. Apart from moving tariffs nearer to the cost of supply this would also provide incentives and an option to those consumers who are willing to shift towards higher voltages. In this Tariff Order an effort has been made to rationalise the tariff in such a manner that both consumers and the supplier of electricity will be able to reap the benefit of loss reduction on shifting towards a high voltage option.

9.8 Comparison of the existing and approved tariff schedule

Summary of Existing Tariff schedule	Summary of Approved Tariff schedule for FY 06
	LT Tariffs : for supply at 230 Volt and 415 Volt A.C
I : Domestic	Jeevan Dhara
<i>First 60 Units</i>	Domestic-A 0.5kw to 5 kw
<i>Next 60 Units</i>	<i>0 - 120</i>
<i>Next 180 Units</i>	<i>121 - 240</i>
<i>Balance Units</i>	<i>> 240</i>

Summary of Existing Tariff schedule	Summary of Approved Tariff schedule for FY 06
II : Commercial	Domestic-B 5 kw to 20kw
<i>First 60</i>	Commercial Load upto 20kw
<i>Balance Units</i>	General Load upto 20 kw
III : General Purpose Supply	Public Lighting connected load upto 5kw
IV : Public Lighting	Agriculture upto 7.5hp
V : Public Water Works	Small Industries Rural upto 20kw
VI: Irrigation	Small Industries Urban
<i>First 20 Units</i>	Temporary supply a) Domestic b) Non-domestic
<i>Next 20 Units</i>	HT Tariffs : Supply at 11kv and above
<i>Balance Units</i>	HT Domestic (25 KVA and above)
VII A : Small Industries	HT commercial (25 KVA and above)
<i>Rural Industries</i>	Public Water Works
<i>Urban Industries</i>	Bulk supply (25 KVA and above)
VII B : HT - I Industries with TOD Tariff	<i>Govt. Educational Institutes</i>
VII C : HT - II Industries with TOD Tariff	<i>Others</i>
VII D : HT - II Extra Large Industries with TOD Tariff	HT Small Industries (25 - 50 KVA)
VIII : Bulk Supply with	HT Industries-I (50 to 150 KVA) with TOD Tariffs
<i>Bulk Government Educational Institutions</i>	HT Industries-II (above 150 KVA) with TOD Tariffs
<i>Others</i>	
IX : Tea, Coffee and Rubber with TOD Tariff	Tea Coffee & Rubber with TOD Tariffs
<i>Season</i>	<i>Season</i>
<i>Off Season</i>	<i>Off Season</i>
X : Oil & Coal with TOD Tariff	Oil & Coal with TOD Tariffs
XI : Rural Unmetered Supply	HT Irrigation Load above 7.5 hp
<i>Domestic</i>	
<i>General Purpose</i>	
<i>Commercial & Others</i>	
Temporary Supply	

Rationale for the New Categories:

Jeevan Dhara

- 9.9 The Commission is aware of its role in the propagation of electricity access to the entire population of Assam – whether rural or urban. It has been widely regarded that provision of electricity is a basic need and the Commission has considered this aspect while determining the tariff rates. As per the Census of 2001, the total number of households in Assam is 49,14,823 out of which 42,03,976 are rural and only 7,10,847 are urban. Out of the total population of 2,66,55,528 in the state the rural population is 2,32,16,288 and the urban population is 34,39,240 only. Hence if it is conservatively estimated that all households of the state will consume 30 kwh/month the requirement on account of this alone would be 1800 MU annually. The total number of consumers connected to ASEB system is 10,87,137 out of which 1,11,735 are shown as rural un-metered domestic consumers and 8,14,120 is metered domestic consumers. This shows that only about 20% of total households are now electrically connected leaving a vast population without the benefit of electricity. The need of provided affordable electricity at the minimum level to all households is a task which all concerned must take up with due seriousness.
- 9.10 The Commission considered it necessary to introduce a ‘Lifeline’ Category for the consumers consuming electricity at the lowest level to protect the interest of consumers of electricity as a basic minimum need and who have low capacity to pay. This new category is named ‘Jeevan Dhara’.

Abolition of Rural Unmetered Categories:

- 9.11 With introduction of the above category the Commission concludes that the Rural un-metered category should not be continued further. This is also the philosophy of the Electricity Act 2003. The Commission had already directed in the Tariff Order for FY 2004-05 that all un-metered consumers should be brought under metered category though this direction has not yet been complied. In view of the introduction of the Jeevan Dhara category, it is no longer necessary to continue the category of rural un-metered consumer in the tariff schedule. Within a period of three months from the date of issue of this order all consumers failing to convert to metered connection will be charged Rs. 250 per connection up to ten connected points. For every connected point over ten points, Rs. 30 per point will be charged.
- 9.12 Having decided on the consumption level of 30 units per month as the level below which "Lifeline" rates shall apply, the Commission has to look at the extent to which these rates should be subsidized by other categories of consumers. At present, Commercial, Industrial and Tea consumers subsidise other categories of consumers. The concept of paying capacity should not, in the Commission's opinion, be used as the main basis for deciding how much cross subsidy can be extracted from these categories of consumers. For one, such a tariff policy has largely contributed to the present situation where many industrial consumers have switched over to captive generation. Secondly, the basic principle of tariff determination is one of bringing the tariff in line with the cost of service. In this

sense, the main determinant of tariff determination should not be considerations of capacity to pay.

- 9.13 The Commission has to ensure the financial health of entities in the electricity sector. This is based on the consideration that the supply and distribution of electricity cannot be maintained unless the charges for electricity supplied are adequately levied and duly collected. This means that the overall operations of a licensee must be viable. Supply to any category of consumers below cost must be compensated by levying a higher than cost tariff for some other category, i.e., by a cross subsidy. The Electricity Act 2003 has adequately recognised cross subsidy and the need for its continuance at present. On the other hand, it has also mandated for gradual reduction and ultimate removal of cross subsidy. In the Commission's view determination of tariff at the level of cost of service represents the goal; higher or lower tariffs represent an exception. The overall scheme of the Act requires that such exceptions to the rule be as limited as possible.
- 9.14 While undertaking the rationalisation of tariff structure the Commission broadly viewed consumers as
- (a) Categories of consumers who pay less than the average cost of supply as per Tariff Order 2004-05: They should continue to pay at least the same percentage of average cost of supply, if not more, after the present tariff revision.
 - (b) Those paying more than the average cost of supply as per Tariff Order 2004-05: They should not pay a higher percentage than average cost of supply after the present tariff revision than they were paying as per Tariff Order 2004-05.

Further Rationalisation of Categories:

LT Group: For supply of electricity at 1- Phase 230 Volts and 3-Phase 415 Volts.

- 9.15 It is observed that there is need for rationalisation of Domestic Category keeping in view the present slab system of tariff. After separating the Lifeline slab upto 30 unit/month it is observed that the slabs should be made wider so that a class of consumer/group, who may be deemed to belong to the same income group, remains within one or two slabs so as to have almost similar financial liability. Further it is observed that domestic consumers with higher demand who are not likely to reduce their consumption are not required to be segregated into different slabs. Accordingly it is decided that a single tariff structure be fixed for consumers having connected loads above 5 kw to 20 Kw in the LT Group.
- 9.16 The existing Commercial Category with two slabs is now dispensed with the benefit of Lifeline tariff extended to commercial consumers having up to 0.5 kw load and 1kwh/day consumption. The LT commercial group will be from above 0.5 kw to less than 20 kw load with a single slab tariff.

- 9.17 The existing General category is now limited to 5 kw connected load and shifting the HT general category consumers to 'HT Bulk – Others' Category as it is noticed that the utilisation of the latter two categories is almost similar.
- 9.18 The need for providing access of electricity to farmers is felt by the Commission. Assam being agriculture based economy with majority of small and marginal farmers; it is felt that access to electricity at reasonable rates is a prime need for the agricultural sector of the state (there is no provision where individual farmers get access to electricity for agricultural use). The Commission intends to make a modest start in this direction. The existing Irrigation Categories with different slabs of consumption is rationalised by introduction of Agricultural Tariff in LT group with a connected load upto 7.5 HP (5kw) The higher capacity agricultural load is included in the HT category.

HT Group: For supply at 11 KV and above

- 9.19 **HT Domestic:** This new category is designed with the objective of segregating those domestic category consumers who now avail of and are likely to avail of main electric supply at higher voltage. This will also encourage Group residential colonies and residents of flats to group themselves into Users' Associations for receiving the benefits of supply of power at a single point. With the introduction of this category the Commission anticipates savings in terms of metering and billing expenses of the licensee and benefits to the consumers of relatively lower tariff for group users. The Electricity Act 2003 provides for, as per Section 13, exemption of groups of consumers such as users' association from the requirements of licence. The Commission will consider petitions for such exemption in due course from such Users' Associations when received.
- 9.20 **HT Commercial:** With the main objective of encouraging more energy consumption at higher voltages, this category is introduced. With recent trend of establishment of big commercial premises it is necessary that adequate quality supply be made available to such consumers for which supply at higher voltage is to be provided. Further, shifting of existing consumers who are now supplied from Distribution Transformers (DTRs) to this category will relieve load demand on the existing DTRs leading to improved quality supply to the existing consumers.
- 9.21 **HT Small Industry:** The present Small Industry category both for Urban and Rural is limited to less than 20 kW connected load. It is also observed that due to this most of the power supply to small industries is provided from DTRs. In the event a consumer of this category needs marginal additional load he had to shift to the HT-1 category (from 25 KVA to 100 KVA) with much higher tariff. Thus there appears to be a good ground to introduce a HT Tariff for small industries without further classification into Rural and Urban. Accordingly this new category is introduced for connected load from 25 KVA to 50 KVA. With this change the existing HT-1 category is rationalised for consumers with loads higher than 50 KVA, up to 150 KVA.

Summary of Categories

	Number of Consumers	Sales in MU
LT Tariffs		
Jeevan Dhara	161,743	100.00
Domestic-A 0.5kw to 5 kw	675,720	575.00
Domestic-B 5 kw to 20kw	81,412	96.00
Commercial Load upto 20kw	106,899	175.00
General Load upto 20 kw	15,759	60.00
Public Lighting	535	7.00
Agriculture upto 7.5hp	95	2.00
Small Industries Rural upto 20kw	4,909	22.00
Small Industries Urban	3,481	25.00
Temporary supply	49	-
LT Total	1,050,603	1,062
HT Tariffs		
HT Domestic 20kw and above	16,282	125.00
HT commercial 20kw & above	12,576	75.00
PWW	1,430	34.00
Bulk supply 20kw and above		
a) Government Educational Institutes	79	30.00
b) Others	2,257	245.00
HT Small Industries (20 KW - 50 KW)	73	20.00
HT Industries-I 50kw to 150 kw	657	35.00
HT Industries-II above 150 kw	424	220.00
Tea, Coffee & Rubber	1,682	300.00
Oil & Coal	102	43.00
HT Irrigation Load above 7.5 hp	1,813	14.00
Temporary supply for all use		
HT Total	36,534	1,141
Grand Total	1,087,137	2,203

Development Fund

- 9.22 One of the problems besetting the power sector in Assam is the lack of funding for investment. Investments are required at two levels. On one hand, there has been a need of investments for larger generation and transmission projects or for schemes which need to be replicated across the State and the requirement of funds for such purposes is of a large order, which have not been forthcoming. Only of late, with the APDRP and ADB funded projects have financing of some magnitude become available. On the other hand in any system there is a need for funds of a lower order of magnitude with resultant benefits which are not insignificant. As there has been an overall dearth of resources, the need for meeting such investments of a smaller nature which are quick maturing and would provide significant benefits in the short run has also been lost sight of.
- 9.23 During the hearings in connection with the responses received on the petitions filed before the Commission for tariff determination for FY 2005-06, number of persons voiced the feeling that the investments stated to be made by ASEB/successor entities are not visible and the results are not been seen by people. There was a general perception that the investments have too long and uncertain a maturity period and what was required were visible results in the short run. Such results are perhaps possible by having small to medium scale investments which yield results which can be exhibited in a short span of time.
- 9.24 With such an end in view, as an experimental measure, the Commission decided on the creation of a Development Fund for directed investments in quick maturing schemes which would yield results in the short run. The Fund would be financed by withdrawal of 3% of the tariff approved and crediting the resultant amount at the end of each month into a separate account. ASEB/successor entities would maintain completely distinct bank accounts into which the proceeds of this would be deposited. The position of this Fund, along with the utilization of balances would be suitably reflected in the books of accounts and balance sheets of each entity.
- 9.25 The principal objective of this Fund would be enhancing the capabilities of the companies so as to serve the interests of consumers better. This is to be achieved in the following manner:
- i) Loss reduction by way of improvements in transmission, transformation and distribution.
 - ii) Achieving larger generation and availability.
 - iii) Achieving larger revenue realization, both by increasing sales and by better recovery.
- 9.26 The utilization of the amounts in this Fund would be with the prior approval of the Commission on schemes approved by the competent authorities of the companies. The implementation of these schemes would be monitored by the Commission taking the help of Government of Assam / ASEB or qualified outsiders.

- 9.27 In order that the objectives of the Fund are realized, the following procedure would be adopted:
- i) Such schemes which are capable of being implemented in the time frame indicated below would be eligible for consideration.
 - ii) The schemes should optimize the Cost: Benefit ratio, i.e., the resultant benefits would be optimized with respect to the level of investment.
 - iii) The balance available in the Fund at the end of the six months from the date of operation of the revised tariff would be applied for implementation of approved schemes. For the first year of operation, the likely balance at the end of six months will be calculated on the basis of the approved tariff and ARR. The likely amount for which schemes are to be submitted will be made known to the companies by the Commission immediately after the issue of Tariff Order.
 - iv) ASEB/successor entities are to formulate appropriate schemes and seek approval of the Commission within three months of the coming into operation of the revised tariff each year.
 - v) The Commission would accord approval within one month of the receipt of schemes at the Commission.
 - vi) The implementation of the schemes is to start not later than six months of the date of the revised tariff order coming into operation.
 - vii) The implementation of the approved schemes will have to be completed within a period of nine months from the date of approval.
 - viii) In respect of such schemes as may be sanctioned previously, lying incomplete due to shortage of funds will also be eligible for funding if such schemes meet the objectives laid down above.
 - ix) For any scheme financed out of the Fund not completed within the given period, the Commission will not make any financing available even though approved, and ASEB/successor entities will have to bear the entire burden of implementation of the scheme.
- 9.28 As funds are required by all three sub sectors, namely generation, transmission and distribution, funds would normally be made available in the ratio of 30:30:40 to these sub sectors. This ratio may be revised suitably in future in the light of experience gained during implementation of the scheme.
- 9.29 This Fund is mooted in the interest of consumers. As such representatives of associations/groups of consumers recognized by the Commission would be associated with the implementation of the schemes financed from the Fund, particularly in monitoring.

Salient features of Tariff Order 2005-06.

- 9.30 The Tariff Order for FY 2005-06 is a reasoned order issued after following the procedure envisaged under the Electricity Act 2003 in a transparent manner and a process of public hearing including consultations with the State Advisory Committee. This year, as many as 19 responses from consumers and others were received by the Commission compared to eight responses last year.
- 9.31 Of the 14 regulations notified by the Commission after due consultation process, the Tariff related regulations were followed as far as possible in issuing this Tariff Order.
- 9.32 The overall increase of tariff is 3.66% over the approved ARR of 2004-05 against claim of the petitioners of 26.16%.
- 9.33 The average tariff has risen from Rs 4.21/KWH to Rs 4.36/KWH pursuant to the Tariff Order.
- 9.34 Re-categorization of consumers has been done into two broad groups of LT & HT with the objective of providing common benefits to the two groups with an aim of reducing T & D loss by encouraging consumers to shift to higher voltage option by suitable tariff rationalization.
- 9.35 Introduction of Lifeline tariff for those consumers who are in need of minimum quantum of electricity at a low price. This category with 0.5 KW load and 1 kwh/day consumption has been carved out of the previous category of consumers.
- 9.36 Abolition of un-metered category.
- 9.37 Reduction of cross subsidy from previous level of Rs 80 Cr (Approx) to Rs 60 Cr (Approx).
- 9.38 Rationalization of tariff for major groups whose productive activities contribute spin-off benefits to the economy of the state by providing employment and revenue contribution to the state exchequer.
- 9.39 Special care in tariff design process to avoid tariff shock to any group of consumers especially in the lower income group in domestic and commercial category.
- 9.40 Set performance standards for licensees and linked to tariff realization whenever feasible.
- 9.41 Allowing sharing of benefits of loss reduction between consumers and licensee to encourage loss reduction.
- 9.42 No Return on Equity is allowed to the licensees due to poor performance.
- 9.43 Complete coverage of cash requirements of the petitioners.
- 9.44 A Development Fund has been proposed with a targeted amount of Rs 30 Cr. to facilitate investment of such nature with low rate of investment but with high benefits to the consumers.