

THE ELECTRICITY CONSUMER GRID

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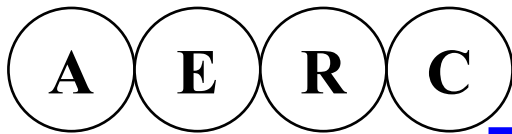


Snap of a

Customer Care Centre
-----Towards a more
consumer friendly atmosphere



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PREFACE

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‘India lives in her villages’ – this axiom is still true today despite the service sector emerging as a major recruiter in the urban and semi urban areas. Hence, when one talks of socio economic progress in India, what is mostly relevant is how the lives of the people residing in the rural areas have changed. Electricity has become one of the basic human needs and it has now been accepted that every household must have access to electricity. The electrification of rural households would not only provide better living conditions but shall go a long way in eradication of unemployment amongst rural masses. The Rajiv Gandhi Grameen Vidyutikaran Yojana launched in April 2005 by the Government of India is a commendable initiative in this regard. An article on the RGGVY scheme and the progress made in Assam on rural electrification has been incorporated in this issue of the Consumer Grid.

Energy conservation has become one of the most important issues concerning one and all. How the use of CFL bulbs in place of ordinary bulbs during the peak period alone can help reduce cost to consumers and simultaneously improve revenue collection of Discoms is discussed in our Ideas Section - “SPARKS”.

This year the tariff petitions which are due to be filed by the utilities are likely to be based on the principles of Multi Year Tariff (MYT). The concept of MYT, its pros and cons and some experiences in a few Indian states are shared with our readers in this volume.

The Consumer Grid completed one year of its inception on 28th October this year. Hope our readers have benefited from the articles published so far.

Inside.....

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“A rich person should leave his kids enough to do something, but not enough to do nothing ” ----- **Warren Buffet**

“Sometimes the path you are on is not as important as the direction you are heading” ----- **Kevin Smith**

“In the earlier years you fight because you do not understand each other, in later years you fight because you do” ----- **John Didion**

FROM THE CHAIRPERSON'S DESK

The power scenario in the state is besieged with some unprecedented challenges. The state's generation capacity is limited and it heavily depends on power from outside sources particularly the Hydel Central Sector Generating Stations (CSGS) of NEEPCO and NHPC. Since most of these stations are Run On River, they are not being able to supply the committed/allotted power to the state owing to scanty rainfall last monsoon which led to drought like situation in many parts of the North East. In Assam, there has always been a big gap between demand and supply of power. The failure of monsoon has added to the woes of the consumer who have to bear the brunt of load shedding in both peak and off peak times. The utilities have also resorted to purchasing power from traders at a higher price than in normal circumstances to mitigate the power shortfall to some extent. The unexpected closure of Ranganadi HEP during these days due to breakdown of machinery (leakage in surge tunnel) has further aggravated the situation. This situation highlights the need of investment in generation by the state and also by other investors.

To attract much needed investment, the National Electricity Tariff Policy has also recommended among others, Multi Year Tariff framework for determination of power tariff. The multi year exercise is supposed to attract new investments by ensuring stability in regulatory decisions. Utmost care has to be taken while trying to overcome the factor of uncertainty which the state power sector has experienced in the recent past. Also, the Commission has to keep in mind the interests of all stakeholders including the consumers.

The Commission expects that it will continue to receive cooperation of all concerned in its endeavour to create a healthier, competitive and more consumer friendly power sector environment in the state.

(P.K. Bora)

News Briefs

4th Coordination Forum Meeting held on 21.09.2006.

The 4th meeting of the Coordination Forum of Assam Electricity Regulatory Commission was held on 21st September, 2006 at the Assam Administrative Staff College, Khanapara. The meeting was presided over by Chairperson of the Commission, Shri P.K. Bora. The meeting was attended by representatives from different organisations like ONGC, OIL, PGCIL, ASEB and successor entities, concerned departments of Government of Assam and other designated members. The main highlights of the discussion were on the improvement of the overall power situation in the state, better consumer service by Discoms and utilization of ‘captive’ power stations of big consumers, where possible, to overcome power shortage.

Cost of Supply Paper of the Commission selected for presentation in Power Quality Conference & Exhibition in California, USA

The Paper titled “Electricity Cost of Supply & Value Pricing” submitted by Shri M.K. Adhikary, Joint Director (Tariff) of the Assam Electricity Regulatory Commission got nominated for presentation in the Power Quality Conference & Exhibition in California, USA on 25th October 2006 organized by Power Electronics Technology magazine, a leading power related magazine in the United States.

NEEPCO Plans 4x120 MW coal-fired project in Margherita, Assam.

Sept. 12: The North Eastern Electric Power Corporation (NEEPCO) plans to set up a 4X120 MW greenfield coal-fired power project in Magherita in Tinsukia district of Assam during the 11th Plan period. Accordingly, the central power generator has applied for a required coal linkage from the local Makum coalfields for the project. The coal requirement of the project is estimated at 1.7 million tonnes per annum. The developer has also identified a cooling water supply source for the project. Meanwhile, it has also started work on preparation of a detailed project report (DPR). Besides, NEEPCO has also initiated actions to seek various statutory clearances for developing the project. The site identified by the developer for the envisaged project is just 45 km away from its existing power plant at Kathalguri. NEEPCO intends to link the proposed transmission line for the Magherita power project to the associated transmission system built by it for the Kathalguri plant in order to optimise the power evacuation cost. (Source: Energylineindia.com)

NEEPCO's Pare Dirhong bags environment clearance

Sept. 11: The North Eastern Electric Power Corporation (NEEPCO) has bagged in-principle environmental clearance from the Ministry of Environment and Forests (MoEF) for the 110 MW Pare hydroelectric project at Arunachal Pradesh. The MoEF has taken the final decision on issuance of the environmental clearance based on a no-objection certificate from the National Standing Committee for Seismic Design Parameters (NCSDP) for the project. The developer expects the final letter to be issued by the MoEF in a week's time. Meanwhile, the project is also lined up for techno-economic appraisal by the CEA. NEEPCO submitted the Detailed Project Report (DPR) for the project to the CEA for examination in December 2005. (Source: Energylineindia.com)

India formally joins ASEM.

Sept. 12: India has formally joined the 45-nation strong Asia-Europe Meeting (ASEM) at its sixth summit meet in Helsinki on September 10-11, 2006. Apart from India, Pakistan and Mongolia have also found entry into the group. At the summit, leaders from various nations underlined the prevailing synergies between energy security and environmental protection. These leaders also reaffirmed that encouraging energy efficiency and the use of renewable and alternative energy improves access to sustainable, reliable, affordable and modern energy services. (Source: Energylineindia.com)

Muttemwar stresses need for harnessing co-generation potential

Sept. 6: The Minister of Non-Conventional Energy Sources Vilas Muttemwar has said that the country has potential of generating about 15,000 MW through co-generation in various core industries including pulp and paper, breweries, textile mills, rice mills and solvent extraction units. Inaugurating the National Workshop on Promotion of Co-generation/Captive Power Plants in Pulp and Paper Mills, organised by his ministry recently, Muttemwar said that the waste generated by rapid industrialisation can be utilised for generating power through waste-to-energy conversion technologies. "This can address the challenge of waste disposal and Green House Gas (GHG) emission besides making the industry independent for power," Muttemwar said. He also stressed the need for encouraging greater use of renewable energy and reducing the dependence on fossil fuels when crude oil prices are at over \$75 per barrel and coal prices are also hardening. (Source: Energylineindia.com)

DERC EVALUATES BENEFITS OF PRIVATISATION

August 9: The Union Power Minister Sushil Kumar Shinde has told the Rajya Sabha that according to the assessment made by the Delhi Electricity Regulatory Commission (DERC), privatization in the NCT of Delhi has been helpful in the following ways: ---At the time of privatization, the Government of NCT of Delhi was giving as assistance about Rs 1,200 crore every year to the Delhi Vidyut Board (DVB). This has since been substantially reduced to about Rs 138 crore to TRANSCO in the year 2005-06. Now the Government of NCT of Delhi is only spending on capital expenditure plans of the Generating Companies and the Delhi TRANSCO Ltd. This implies that additional funds are now available with the government for other development schemes. The government, however, has spent a nominal amount on providing subsidy to certain groups of consumers in accordance with Section 65 of the Electricity Act, 2003. For example, for 2005-06, the Government of NCT of Delhi spent about Rs 91 crore for subsidizing power tariffs for domestic and agricultural consumers. --- The Aggregate Technical and Commercial Losses (AT&C) have come down from 50% in 2002 to about 35% (provisional) in March, 2006. Distribution companies have achieved the targets for loss reduction. (Source: Energylineindia.com)

Government to woo foreign bankers for mega power projects.

Oct 21: The Government of India is all out to woo export credit agencies and foreign bankers to invest in the 4000 MW ultra mega power projects. With five projects in the pipeline, this power generation capacity addition programme will require funding to the tune of Rs 80,000 to Rs 90,000 crore. Fact is that domestic funds will not be able to meet the requirements. The Government has held meetings with representatives of Japan Bank for International Co-operation, Nippon Export and Investment Insurance, Swedish Export Credit Guarantee Board, Germany's KfW, the Export-Import Bank of Korea as well as agencies from France, Germany, Canada and USA. (Source: The Economic Times)

Gas shortage adds to State power crisis

Oct 22: The problem of acute power shortage faced by Asom has been compounded by the failure of the oil and gas companies to provide sufficient gas to the thermal power stations of the Assam State Electricity Board (ASEB) and the North Eastern Electric Power Corporation (NEEPCO) and the Chief Minister has already taken up the issue with the Union Minister for Petroleum and Natural Gas. The State Power Minister Pradyut Bordoloi said that the Namrup and Lakwa thermal power stations of the ASEB and the Kathalguri power station of the NEEPCO

have been seriously affected by the failure of the Oil India Limited, Gas Authority of India Limited and Oil and Natural Gas Corporation Limited to supply adequate gas. He said that the Lakwa and Namrup stations of the ASEB received only 50 percent of the committed gas till a few days back and after the state government strongly took up the matter with the oil companies, the situation improved marginally. However, he said that the power stations are still not receiving the committed amount of gas. “If the power stations receive the committed amount of gas, the ASEB would be able to add at least 50 MW to its total power generation,” he said. The Minister admitted that the State was facing severe power crisis and with almost all the major states of North India facing shortage, Asom is not in a position to draw additional power from the national grid. He said that over dependence on hydropower was one of the main reasons for the present crisis as most of the hydropower stations of the region are affected by the dry weather condition. He pointed out that at present, 70 percent of the total power requirement of the state is met from the power generated in the hydropower stations, while, in an ideal situation, around 60 percent of the requirement should be met from the thermal power stations. He revealed that though West Bengal was considered to be a state having surplus power, it was also facing problem during the peak hours. However, Asom is buying 50 MW of power from West Bengal during the off peak hours. Bordoloi revealed that the demand for power in the State increased by around 200 MW during the peak period in the last couple of years and due to the present crisis, the major industries have been requested not to run their factories in the peak period. He said that almost all the hydropower projects are not running to their full capacity because of shortage of water and very often the units have to be shut down during the off peak hours to preserve water for the peak hours, which in turn resulted in shortage of power during the off peak periods also. Replying to a question, Bordoloi admitted that the state also faced problem during the dry season last year, but the problem this year is more acute. He said that a contingency plan was prepared to overcome the crisis, but that too went haywire. He disclosed that the National Thermal Power Corporation is setting up a plant in Bihar and that was scheduled to be commissioned in September and the State was assured of 120 MW of power from the plant. However, the NTPC could not commission the plant on time and now it would be commissioned only in December. “We were hoping to overcome the crisis with the power that we were to get from the new plant, but the delay in commissioning of the same totally upset our plans,” he admitted. Meanwhile, the actual construction of the 750 MW thermal power station, to be commissioned by the NTPC at Bongaigaon, is likely to start by January next year and the Corporation has assured to complete the project by 2011. Bordoloi hoped that the commissioning of the project would improve the situation in the state to a great extent, as the dependence on hydel power would be reduced. On the Karbi Langpi project, Bordoloi said that the ASEB first assured to complete the project by March this year and then by June. Now, the engineers engaged in the setting up of the project have assured to complete the project by

December this year. “The Government has told the ASEB in no uncertain terms that no deadline can be ever elastic and they must complete the project by December this year,” he added. (Source: The Assam Tribune)

BSES launches power saving initiative.

Oct 25: While makers of consumer products are known to come out with lucrative offers and discount schemes to woo customers, in a first-of-its-kind initiative in Delhi the power distribution company BSES has joined hands with a manufacturer of CFLs to provide its consumers with a “buy one CFL bulb, get another absolutely free” scheme as a part of its energy conservation initiative.

Stating that its offer will help save electricity and money for its consumers, BSES said that under the scheme there would be no restriction on the number of CFL bulbs a customer can buy. Moreover, all CFLs will have a one-year replacement warranty. The scheme will run till December 31..... Under the scheme, customers will be offered 11 watt, 15 watt and 20 watt CFL bulbs. For making the purchase, people will have to visit any of the 33 customer care centres or 32 select cash counters and show a copy of the last paid bill from September 1 onwards. To facilitate the offer, BSES has tied up with Indo Asian, one of India’s largest manufacturers and exporters of CFL bulbs. Special kiosks are being set up by the manufacturer at all 65 customer touch points from where the customers will be able to avail of the offer. Three mobile vans will also be pressed into service.

“Savings of up to Rs 391 per year can accrue with just one CFL bulb. Imagine the magnitude of savings accruing to a family if all the bulbs are replaced with CFLs!” said BSES Rajdhani Power Limited CEO Lalit Jalan.(Source: The Hindu)

The very 1st volume of the Consumer Grid had proposed setting up of stalls for CFL bulbs and other power saving products in the consumer care centers by the Discoms.

RAJIV GANDHI GRAMEEN VIDYUTIKARAN YOJANA

For attainment of National Common Minimum Programme (NCMP) goal of providing access to electricity to all households by 2009, Government of India in April 2005 launched a new scheme “Rajiv Gandhi Grameen Vidyutikaran Yojana – Scheme for Rural Electricity Infrastructure & Household Electrification.”

Salient features of the scheme:**1. THE SCHEME**

- The scheme aims at electrification of one lakh villages (excluding villages to be electrified by MNES) and providing access to electricity to 7.8 crore rural households including 2.34 crore BPL households by 2009.
- The Government has estimated an outlay of Rs 16000 crore under RGGVY for attainment of stipulated objectives of the programme, of which, Rs 5000 crore has been approved as capital subsidy during 10th plan period for implementation of Phase-I of the Programme.
- Ninety percent capital subsidy would be provided for overall cost of the projects under the scheme.
- States must make adequate arrangements for supply of electricity and there should be no discrimination in the hours of supply between rural and urban households.
- For projects to be eligible for capital subsidy under the scheme, prior commitment of the States would also be obtained before sanction of projects under the scheme for:
 - ❖ Deployment of franchisees for the management of rural distribution projects in projects financed under the scheme, and
 - ❖ The provision of requisite revenue subsidies to the state utilities as required under the Electricity act, 2003.
- The scheme would be implemented through the Rural Electrification Corporation (REC).

2. SCOPE

Under the Scheme, projects could be financed with capital subsidy for provision of:

- Rural Electricity Distribution Backbone (REDB)
 - ❖ Provision of 33/11 KV (or 66/11 KV) substations of adequate capacity and lines in blocks where these do not exist.
- Creation of Village Electrification Infrastructure (VEI)
 - ❖ Electrification of un-electrified villages
 - ❖ Electrification of un-electrified habitations
 - ❖ Provision of distribution transformers of appropriate capacity in electrified villages/habitations
 - ❖ Decentralised generation-cum-distribution from conventional sources for villages where grid connectivity is either not feasible or not cost effective.
 - ❖ 25000 remote villages covered for financing under MNES not included
- REDB, VEI and DDG would also cater to the requirement of agriculture and other activities.

This would facilitate overall rural development, employment generation and poverty alleviation.

- Rural Household Electrification of Below Poverty Line Households:
 - ❖ Electrification of unelectrified Below Poverty Line (BPL) households would be financed with 100% capital subsidy as per norms of Kutir Jyoti Programme in all rural habitations.
 - ❖ Households above poverty line would be paying for their connections at prescribed connected charges and no subsidy would be available for this purpose.
- The scheme covers the entire country

3. FRANCHISEES

- In the management of rural distribution through franchisees who may be Non-Governmental Organisations (NGOs), Users Association, Cooperatives or individual entrepreneurs.
- The Panchayat Institutions would be associated.

- The franchisees arrangement may be for system beyond and including feeders from substations or from and including Distribution Transformer(s).
- REC guidelines on Franchisee were released by Hon'ble Minister of Power during National programme of Franchisee launched in May 2006, the highlights of which are:
 - ❖ Deployment of franchisee system has been made mandatory in the scheme so as to bring about revenue sustainability in the rural distribution system.
 - ❖ Management of rural distribution will be through franchisees, who can be Non Governmental Organisations (NGOs), Users Associations, Cooperatives, Individual entrepreneurs and Gram Panchayats
 - ❖ Panchayati Raj Institutions to have an important role of overseeing in advisory capacity, the delivery of services by the franchisees according to their identified responsibilities.
 - ❖ Provisions of state governments to consider giving the responsibilities of franchisees to the Panchayati Raj Institutions.
 - ❖ Franchising arrangement is flexible to accommodate franchisees from feeders to substation or from and including Distribution transformers.
 - ❖ Franchisee model; arrangement must entail purchase of bulk power (input based) and routine operation and maintenance of distribution infrastructure.
 - ❖ Input based franchisee to be accountable for loss reduction and reduce theft in the system.

4. REVENUE SUSTAINABILITY

- Based on the consumer mix, the prevailing consumer tariff and likely load and the Bulk Supply Tariff (BST) for the franchisee would be determined after ensuring commercial viability of the franchisee.
- This Bulk Supply Tariff would be fully factored into the submissions of the State Utilities to the State Electricity Regulatory Commissions (SERCs) for their revenue requirements and tariff determination.

- The State government under the Electricity Act is required to provide the requisite revenue subsidies to the State utilities if it would like tariff for any category of consumers to be lower than the tariff determined by the SERC.
- While administering the scheme, prior commitments may be taken from the State Government regarding –
 - ❖ Determination of bulk supply tariff for franchisees in a manner that ensures their commercial viability.
 - ❖ Provision of requisite revenue subsidy by the State Government to the State Utilities as required under the Electricity Act.

5 RELEASE OF CAPITAL SUBSIDY

- The capital subsidy for eligible projects under the scheme would be given through REC and projects shall be implemented fulfilling the conditionality.
- In the event projects are not implemented satisfactorily in accordance with the conditionalities indicated above, the capital subsidy could be converted into interest bearing loans.

6. CPSU's SERVICES

- With a view to augment the implementation capacities for the programme, REC has entered into MOUs with NTPC, POWERGRID, NHPC and DVC to make available CPSUs' project management expertise and capabilities to states wishing to use their services.
- Twelve states namely Assam, Bihar, Chattisgarh, Gujrat, J&K, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Tripura, Uttar Pradesh & West Bengal and one Union Territory Lakshdweep have assigned implementation of rural electrification work under RGGVY, spread over 132 districts across the country to four CPSUs namely NTPC, POWERGRID, NHPC & DVC.

7. TECHNOLOGY DEVELOPMENT, CAPACITY BUILDING, MIS, etc.

- Upto one percent of the total subsidy under the scheme would be used for associated works/efforts of the programme.

8. MERGER OF EXISTING SCHEMES

- This scheme merges the existing “Accelerated Electrification of one lakh villages and one crore households” and the Minimum Needs Programme for rural electrification.

9. EVALUATION

- The scheme will be subject to evaluation and a view on modification required for implementation during 11th Plan will be taken after a comprehensive review towards the end of 10th Plan.

10. STATUS OF RGGVY SCHEME IN ASSAM

Sl. No.	Name of District	Total Scheme Cost Rs lakh	Overhead Charges Rs lakh	Date of Submission of Scheme to REC	Tendering	Remarks
1	Tinsukia	5567	433.19	03.10.2005		Approved by REC, vide letter No. RECG/RGGVY/Tinsukia/ 2005-06/590 dt. 23.11.05
2	Morigaon	2759	250.83	08.03.2006	Technical evaluation process started	‘In Principle’ approval for (Jorhat, Morigaon, Goalpara, Nalbari & Barpeta) from REC Vide letter No. RECG/RGGVY/2006 -07/ASM/69 dt. 26.04.2006
3	Jorhat	3415	310.48	08.03.2006	Tendering is in process	
4.	Goalpara	3866	351.46	03.10.2005		
5.	Nalbari	3529	320.81	08.03.2006		
6.	Barpeta	4881	481.81	08.03.2006		
7.	Golaghat	6468	646.80	18.09.2006		
8.	Lakhimpur	6764	614.95	22.08.2006		Revised Submitted
9.	Nagaon	9944	994.37	18.09.2006		Revised Submitted
10	Darrang	7055	641.36	20.03.2006		
11.	Kamrup	10200	1020.00	31.08.2006		Revised Submitted

AN OVERVIEW OF RURAL ELECTRIFICATION IN ASSAM

- 86% of State population is rural
- About 63% of population is engaged in agricultural and allied activities.

1	Total Number of villages	25,124
2	Electrified villages	21,587
3	De- electrified villages	4,125
4	Remote Villages	2,145
5	No. of Rural households (2001 census)	43,45,167
6	No. of rural household electrified	7,78,842
7	Kutir Jyoti Connections	84,168

Completed Rural Electrification Scheme with Target and Achievement.

Scheme	Target (No. of village)	Achievement	Amount Rs Cr	Achievement
NLCPR:200-01 (Tribal village)	20	20	1.34	1.34
RE-MNP: 2000-01 (Intensification)	398	349	13.26	13
RE- PMGY: 2001-02 (Ist Phase)				
(a) Virgin	135	98	30.055	25.314
(b) Intensification	198	157		
(c) 33/11 KV Sub Station	37	18		
RE-PMGY: 2001-02 (2 nd Phase)				
(a) Remote Village	07	07	30.055	26.19
(b) Virgin	351	305		
RE- MNP: 2001-02 (Intensification)	513	437	26.52	25.17

ON- GOING Rural Electrification Scheme with Target and Achievement.

Scheme	Target (No. of village)	Achievement	Amount Rs Cr	Achievement
RE- PMGY:2002-03 (a) Virgin (b) Intensification	101 139	84 126	27.82	20.28
RE-MNP:2002-03 (a) Virgin (b) Intensification	92 844	80 630	60.00	43.52
RE-PMGY:2003-04 (a) Virgin (b) Intensification	74 161	30 145		
RE-MNP: 2003-04 (a) Virgin (b) Intensification	100 741	56 209	60	
Rehabilitation of Rural Distribution Transformer (Nos)	275	275	2.92	2.92

Here are some incredibly useful phrases you can use when in the workplace.....

If you don't know what it is, call it an 'issue'...

If you don't know how it works, call it a 'process'...

If you don't know whether its worth doing, call it an 'option'...

If you don't know how it could possibly be done call it a 'challenge' or an 'exciting opportunity'...

If you don't know how to do something, 'empower' someone else to do it for you...

If you can't take decisions, 'create space' for others to operate...

Never criticize or boast, call it 'information sharing'...

Never call something a failure or mistake, its a 'positive learning experience'...

Never argue, have an 'adult conversation'...

Multi Year Tariff – A Discussion

1. What is Multi Year Tariff (MYT)?

According to Section 27 (7) of the Electricity Act 2003, an annual filing of expected revenue requirements (ARR) and proposal of tariff charges is to be done by the power utilities and the Commission has to either approve the ARR & tariff proposed by the licensee or provide an alternative tariff. One of the issues that has been engaging the attention of the government at the centre and in the states as well as the Regulatory Commissions has been the possibility of replacing this annual exercise by a new system where the tariff determination is done for a number of years, in one exercise. This has been termed as "Multi Year Tariff (MYT)".

2. What is the usual period for which tariff is to be determined in MYT?

The Commission shall define the periodicity for tariff determination that will apply for a number of years called the **Control Period**. The AERC (Terms & Conditions for Determination of Tariff) Regulations, 2006 has laid down the Control Period (as specified in the CERC Regulations) as follows:

FUNCTIONS	CONTROL PERIOD
Generation	5 years from 1 April, 2006
Transmission	3 years from 1 April, 2006
Distribution	3 years from 1 April, 2006

Note: For example if the tariff determination period is 2006-07, the Control Period for distribution shall be 2006-07, 2007-08 and 2008-09.

3. In MYT regime will the same tariffs be applicable for the entire Control Period?

No, the same tariffs may not be applicable for the entire Control Period. Tariffs may be different for every year of the Control Period. In MYT, the tariffs for every year of the Control period are predetermined at the start of the Control Period. Only fuel price changes are allowed to be adjusted quarterly. If any adjustments are necessary regarding other elements of uncontrollable cost, it can be done at the annual review or at end of the Control Period only.

4. What are the benefits of MYT?

There are apparently three benefits of MYT. These are as follows:

- a) Reduction in regulatory uncertainty and

- b) Provision of a transparent and stable system of incentives. This could lead to greater private sector interest in investment in the distribution segment and consequently in other segments of the power sector.
 - c) Reduction of regulatory effort on the part of the Commissions, utilities and other stakeholders.
5. What are the necessary conditions for successful implementation of MYT?
- a) The first and foremost condition for MYT to be successful is the availability of reliable and accurate base line data.
 - b) Secondly, setting benchmarks/standards or broader principles for performance by the utilities. This is essential for operating a formula based tariff revision system.
 - c) Thirdly, adherence to these benchmarks or principles for a number of years say 3 -5 years.
6. When will MYT be implemented in Assam?

The Commission proposes to implement MYT from FY 2007-08.

7. Which are the states where MYT have already been implemented?

In India, some of the State Electricity Regulatory Commissions (SERCs) like Uttar Pradesh, Delhi, Maharashtra, etc have experimented with MYTs. However, this has been limited to the major issues of T&D loss and collection efficiency. In the case of Assam, the utility (erstwhile integrated ASEB) had proposed a T&D loss of 40% in 2002-03 and suggested that the utility would be able to reduce it to 33% by 2006-07. The states where MYT has been implemented in all aspects are Andhra Pradesh in FY 2006-07, Madhya Pradesh in FY 2006-07 and Karnataka in FY 2006-07. Although these states have implemented MYT, they have kept the provision of annual review to avoid unexpected variation in tariffs due to adverse weather conditions and other natural calamities.

8. What were the difficulties faced by the AERC /utilities in implementation of MYT in Assam from FY 2006-07?

- a) The Electricity Act 2003 as well the National Electricity Tariff Policy 2006 mandated that electricity tariffs should move towards the cost of supply of electricity. Without doing so, implementation of MYT would not be prudent as this might cause lot of distortions and adjustments later. During the year 2005-06, the Commission tried to evolve a mechanism for determination of Cost of Supply through a process of consultation and consensus among different stakeholders. The Tariff Order 2006-07 reflects these changes necessary for moving towards the cost of supply and in this Order the Commission issued directions to the utilities for implementation of MYT in the successive years.
- b) Also, base line data was either not available or was not reliable. The Regulator and the Utilities have worked closely and seriously for quite some time now and acceptable standards of data availability has been achieved in some cases and the quality of the database has also improved.
- c) Major investments are being carried out in the power sector in Assam under ADB, APDRP and RGGBY schemes. Some of these schemes have been completed in FY 2006-07 and the remaining are in the process of implementation. A clear picture of the status of these schemes has emerged only in mid 2006-07.

Experiences of MYT in a few Indian states are given below. MYT has been limited to the major issues of T&D loss and collection efficiency. These are compiled from the TERI publication on “Multi Year Tariff – Issues & Experiences in South Asia”.

STATE: MADHYA PRADESH

Experience: In 2000-01, sample studies done by consultants as well by the MPERC (Madhya Pradesh Electricity Regulatory Commission) assessed total T&D loss as 51%. The MPSEB (Madhya Pradesh State Electricity Board) highlighted that reduction of losses would require considerable investment and certain tough measures. In view of the magnitude of the problem and the limited resource availability, it proposed a modest reduction of T&D losses from 48.71% in 2000-01 to 42.88% in 2001-02 by 5.83 percentage points. This target was accepted by the MPERC. In addition to this, the MPERC prescribed the programme for reduction of T&D loss over the next five years. Table 1 shows this programme. This multi-year approach to reduction of losses can once again be highlighted as MYTs that have been limited to the issue of T&D loss.

Table 1: Proposed reduction of transmission and distribution losses by the Madhya Pradesh Electricity Regulatory Commission		
Year	Total Loss ((%)	Reduction (%)
2000-01	51.00	-
2001-02	42.88	8.12
2002-03	37.00	5.88
2003-04	32.00	5.00
2004-05	28.00	4.00
2005-06	25.00	3.00

In the tariff order 2002-03 it was noted that the reduction in T&D loss was only 2.23 percentage points. The order noted that there had been a reduction of 3.7 percentage points during 2001-02. Estimated losses for 2001-02 were 47.29% (Ten rural electrification societies, with an inherited loss of 1.53%, were merged with the MPSEB in March 2002. This led to increased T&D losses of 48.77% at the end of 2001-02).

Table 2: Proposed & approved (T&D) transmission and distribution losses in Madhya Pradesh (percentage)				
	Tariff Order 2001-02		Tariff Order 2002-03	
	Proposed	Approved	Proposed	Approved
T&D Losses	42.88	42.88	44	42

Table 2 shows the T&D losses as proposed by the MPSEB and approved by the MPERC. The target reduction for annual T&D loss by the end of March 2003 was fixed at 42% as compared to the 37% proposed earlier by the MPERC in the multi-year approach.

STATE: MAHARASHTRA

Experience: The MERC experimented with MYT in the tariff order of 2000/01, albeit in an implicit manner. The utility, the MSEB (Maharashtra State Electricity Board), estimated T&D losses at 29% for 1999-2000. The MERC, however, estimated losses as 31.87% after taking into account the revised norms for long—term agricultural consumption. As per the CEA (Central Electricity Authority) guidelines, the MSEB was to attain a loss level of 15% in a period of four years. The loss level of 31.87% was to be adjusted in four years at the

rate of 5% every year. Table 3 shows an interpretation of the MERC's guideline. Therefore, though the MSEB had proposed to reduce losses to 27.66% in 2000-01, it was mandated to reduce the same to 26.89%. All losses in excess of 26.89% were disallowed by the MERC.

Table 3: Multi-year targets indicated by Maharashtra Electricity Regulatory Commission in Tariff Order 2000 (percentage)	
Year	Multi-year target
1999-00	31.87
2000-01	26.89
2001-02	21.89
2002-03	16.89

Against the approved level of losses, losses for 2000-01 were 39.4%. In fact, if the 5% reduction target had been fulfilled, there would have been no need to revise tariffs. It is interesting to note that the increase in revenue proposed by the MSEB for 2001-02 (14.56 billion rupees) is less than the 24.3 billion rupees that could have been earned by it by reducing losses to the targeted level.

In a somewhat different approach to T&D losses, the MERC held that consumers were equally responsible for losses. Thus, the cost of excess losses would be borne equally by the MSEB and the consumers. The excess losses being 12.6%, the MSEB and the consumers would each bear the costs of 6.3% losses in 2001-02. Taking this into account, the losses approved for revenue requirement were 33.2% (26.89% + 6.3%) for 2001-02. When setting the target for 2001-02, although the MERC wished to set a reduction target of 4% to 5%, it did not do so as a special case for that year, considering the prevailing circumstances and the estimation involved for T&D losses in the absence of 100% metering. Nevertheless, it reaffirmed that the revised targets would aim to attain the CEA norms of 15% to 16% in two to three years.

The status of targets and achievements with respect to T&D losses for the state of Maharashtra is given in Table 4.

Table 4: Status of T&D losses in Maharashtra (percentage)

Financial year	Proposed by MSEB	Approved by MERC	MYT (as per 2000)	Actual
2000	-	-	-	31.87
2001	27.66	26.87	26.89	39.49
2002	39.49	33.2	21.89	-
2003*	-	-	16.89	-

MSEB — Maharashtra State Electricity Board; MERC — Maharashtra Electricity Regulatory Commission; *Since the tariff order for financial year 2001-02 came into force with effect from 1 January 2002, the MERC maintained that it did not expect MSEB to file revision for the financial year 2002/03.

STATE: DELHI

Experience : In its tariff filing for tariff order of 2001-02, the DVB (Delhi Vidyut Board) had proposed long-term principles for tariff determination to the DERC (Delhi Electricity Regulatory Commission). In light of the impending privatization of the distribution business, the DVB opined that LTTPs would impart certainty and help the private investor formulate its business strategy. It outlined a tariff—setting formula and the process of estimating changes in the costs of its various components. In addition, it proposed that the DERC lay down tariff principles from 2006-07 to 2010-11, a year ahead of 2006-07.

The DERC, however, maintained that the sector was not mature for the introduction of MYTs and did not approve the implementation of tariff principles proposed by the DVB.

MYTs were, however, incorporated in the privatization of Delhi's distribution business. An MYT framework was introduced in Delhi because the Government of Delhi found it difficult to privatize distribution if reduction in the loss level / efficiency gain was determined annually. Reduction in loss levels was the bidding criterion during the privatization process. In this manner, the government also utilized the interplay of market forces to set the targets. The AT&C loss was fixed as the parameter of efficiency and was to be reduced over a period of five years. Owing to a lack of competition, the losses were finally negotiated and then accepted. These were lower than those initially fixed by the government. The net loss reduction envisaged over the five-year period as per the minimum level set and the bids accepted by the government are given in Table 5.

In addition to the above, a comparison of the opening level of AT&C loss with the level that would be attained at the end of five years is given in Table 6.

The privatization process of Delhi's distribution business encouraged substantial private investment, since the process of competitive bidding was based on loss reduction rather than the conventional way of bidding on capital costs, which was adopted in Orissa.

Table 5: Aggregate (technical and commercial) loss reduction targets in Delhi over a five year period. (percentage)

Distribution Company	Minimum Reduction Targets	Accepted Reduction Targets
Central East	20.75	17
South West	19.25	17
North west	19.25	17

Table 6: Opening Aggregate (technical and commercial) loss at the beginning and end of a five year period in Delhi. (percentage)

Distribution Company	Opening (start of 2002/03)	Opening (start of 2007-08)
Central East	57.2	40.2
South West	48.1	31.1
North west	48.1	31.1
All Discoms	50.7	33.7

The framework adopted in Delhi is incentive-based. Under this framework, the distribution licensee can retain 50% of the additional revenue arising from the difference between the level of AT&C bid and the level attained for any particular year.

More experiences of MYT in South Asian and other countries will be published in the subsequent issues of this bulletin. Multi Year Tariffs (MYT) have been implemented fully in a few states in India from the FY 2006-07. The experience in these states and other states that follow them this year will indicate the advantages and disadvantages of the MYT framework and its applicability in India.



REPLACE YOUR ORDINARY BULB WITH CFL

There is always a deficiency between demand and supply of power particularly during the evening peak (five) hours. The calculations below show how the demand - supply position gets altered within a very short time and both consumers and suppliers make profit by replacing incandescent bulbs with Compact Florescent Lamps (CFLs) having lower KW and same illumination capacity.

SCENARIO I: The demand for power in a particular area during the peak hours is 1500 KW [15,00,000 W] and supply is only 1000KW [10,00,000 W](say). The demand by the domestic category is 600 KW while by other categories (commercial, industrial, etc) collectively is 900 KW. Suppose the domestic consumers are using total 10000 bulbs of 60W and the utilities have constraints not to resort to load shedding during the peak period in domestic categories. Then the total energy consumption and bill of the consumers will be as follows:

Sl No	Items	Domestic Category (Average Tariff: Rs 3/unit, say)	Others (Average Tariff: Rs 5/unit, say)
1.	Demand	60 W x 10,000 = 6,00, 000 W i.e. 600 KW	Power Available: (1000-600) i.e. 400 KW
2.	Energy for 5 hrs	600 x 5 = 3000 KWh	400 x 5 = 2000 KWh
3.	Bill Payable per day	3000 x 3 = Rs 9,000/-	2000 x 5 = Rs 10,000/-
4.	Bill payable per month for peak period	9000 x 30 = Rs 2,70,000/-	10000 x 30 = Rs 3,00,000/-
5.	Total collection for peak period by the utility	Rs (2,70,000 + 3,00,000) = Rs 5, 70,000/-	

Scenario II: Suppose all the incandescent bulbs of 60 W of domestic consumers are replaced by CFLs of 15 W (which gives same lamination as 60W ordinary bulbs) of Rs 100 each. Then we have the following scenario:

Sl No	Items	Domestic Category (Average Tariff: Rs 3/unit, say)	Others (Average Tariff: Rs 5/unit, say)
1.	Demand	15 W x 10,000 = 1,50,000 W i.e. 150 KW	Power Available: (1000-150) i.e. 850 KW
2.	Energy for 5 hrs	150 x 5 = 750 KWh	850 x 5 = 4250 KWh
3.	Bill Payable per day	750 x 3 = Rs 2,250/-	4250 x 5 = Rs 21,250/-
4.	Bill payable per month for peak period	2250 x 30 = Rs 67,500/-	21250 x 30 = Rs 6,37,500/-
5.	Total collection for peak period by the utility	Rs (67,500 + 6,37,500) = Rs 7, 05,000/-	

In SCENARIO II, if the total replacement is done by the domestic consumers themselves then, against an investment of Rs 10,00,000/- *they will make an annual saving of Rs (2,70,000 – 67,500) x 12 = Rs 24,30,000/- i.e. net savings of Rs (24,30,000- 10,00,000) = Rs 14,30,000/-*

If the total replacement is done by the Discoms then, against an investment of Rs 10,00,000/- *they will make an annual additional collection of Rs (7,05,000 – 5,70,000) x 12 = Rs 16,20,000/- i.e. net collection of Rs (16,20,000 - 10,00,000) = Rs 6,20,000/-*

The Discoms may consider the option to invest 50% of the project cost by applying the concept of “**Buy one CFL bulb, get one free**” for the domestic consumers. By doing so, they will not just encourage use of CFL bulbs but will also be able to lower shortfall of power during peak period and improve collection by selling more power to higher tariff categories. In order to encourage efficient use of power, CFL bulbs may also be distributed

free among the Jeevan Dhara category. For any kind of replacement, consumers will have to exchange their working ordinary bulb for a CFL bulb.

Let us now discuss as to how a single consumer will benefit by using CFLs

Suppose a family uses 5 ordinary bulbs of 60 W each during the peak evening hours.

Then, His consumption during those hours will be : $(60 \times 5) \text{ W} \times 5 \text{ h}$

$$= 1500 \text{ Wh}$$

$$= 1.5 \text{ KWh}$$

$$\text{Rate of electricity @ Rs 3/ KWh} = \text{Rs } (1.5 \times 3) = \text{Rs } 4.50$$

$$\text{BILL PER MONTH} = \text{Rs } 4.5 \times 30 = \text{Rs } 135$$

If all the bulbs are replaced by CFLs of 15 W then,

His consumption during those hours will be : $(15 \times 5) \text{ W} \times 5 \text{ h}$

$$= 375 \text{ Wh}$$

$$= 0.375 \text{ KWh}$$

$$\text{Rate of electricity @ Rs 3/ KWh} = \text{Rs } (0.375 \times 3) = \text{Rs } 1.125$$

$$\text{BILL PER MONTH} = \text{Rs } 33.75$$

$$\text{Therefore saving per month} = \text{Rs } (135 - 33.75)$$

$$= \text{Rs } 101.25$$

Suppose each CFL bulb cost Rs 100/- then the consumers total investment = Rs 500/-

The consumer will recover his investment in just 5 months.

- The consumer may get benefit of lower slab in case of slab rate tariff.
- Due to lower energy consumption by domestic consumers, resultant loss in supplier network will be reduced.
- The CFL bulbs may be characterized by low power factor for which marginal investment on the “*equipment link capacitor bank*” may become essential.

Central Electricity Authority
Financial Studies & Assistance Division
Statement showing estimated average rates of Electricity (Updated upto 01.08.2006)

DOMESTIC CATEGORIES (Rate in Paise per kWh)

Sl. No.	Name of Utility	Tariff effective from	Domestic 1 KW (100 KWh/month)		Domestic 4 KW (400 KWh/month)		Domestic 10 KW (1000 KWh/month)	
1	Andhra Pradesh	1-Apr-2006	238.50		396.63		492.25	
2	Assam	1-Apr-2005	277.45		388.60		438.15	
3	Bihar	1-Jun-2001	206.50	U	237.18		279.84	U
			63.60	R				R
4	Chattishgarh	1-Jul-2005	177.70		277.09		317.59	
5	Gujrat	25-Jun-2004	391.84	U	516.46	U	588.71	
			276.29	R	382.44	R	443.99	
6	Haryana	15-Aug-2004	333.00		379.25		414.50	
7	Himachal Pradesh	1-Jul-2005	230.96		270.27		284.96	
8	Jammu & kashmir	1-Apr-1999	122.00		222.00		222.00	
9	Jharkhand	1-Jan-2004	163.00	U	183.00	U	182.00	
			74.00	R		R		
10	Karnataka (Bangalore Metro Area)	10-Oct-2005	292.43		418.60		482.32	
	Karnataka (Other Areas)	10-Oct-2005	281.93		402.55		463.42	
11	Kerela*	1-Apr-2004	187.00		398.89		517.61	
12	Madhya Pradesh	1-Apr-2006	335.59	C	423.61	C	442.96	C
		1-Apr-2006	329.89	N	411.73	N	430.83	N
13	Maharastra	1-Dec-2003	329.16		367.95		431.70	
14	Meghalaya	1-Oct-2004	180.00		246.25		275.50	
15	Orissa	1-Apr-2006	135.20		247.00		286.00	
16	Punjab	1-Apr-2006	247.10		374.15		408.80	
17	Rajasthan	1-Jan-2005	417.50	U	396.88	U	392.75	U
			390.25	R	363.81	R	358.53	R
18	Tamil Nadu	1-Feb-2006	120.00		216.25		269.50	
19	Uttar Pradesh	1-Dec-2004	282.00	U	339.75	U	351.30	U
			124.00	R	112.75	R	110.50	R
20	Uttaranchal	1-Apr-2006	215.00		215.00		215.00	

Sl. No.	Name of Utility	Tariff effective from	Domestic 1 KW (100 KWh/month)		Domestic 4 KW (400 KWh/month)		Domestic 10 KW (1000 KWh/month)	
21	West Bengal	1-Apr-2005	218.30	U	299.34	U	368.70	U
			212.17	R	288.01	R	350.64	R
22	Arunachal Pradesh	1-Feb-2000	162.50		211.88		231.75	
23	Goa	1-Apr-2002	122.00		170.75		216.50	
24	Manipur	3-Sep-2002	262.20		299.70		302.20	
25	Mizoram Distt HQ & Sub-Div Area	25-Jul-2005	170.00		247.50		249.00	
	Mizoram Other Areas	25-Jul-2005	180.00		195.00		198.00	
26	Nagaland	1-Apr-2006	272.00		310.25		337.70	
27	Sikkim	1-Apr-2006	105.75		266.06		322.43	
28	Tripura	1-Jul-2003	200.00		270.00		460.00	
29	A&N Islands	1-Jul-2003	130.00		275.00		326.00	
30	Chandigarh	1-Aug-2005	179.00		304.00		304.00	
31	Dadra & Nagar Haveli	1-Sep-2002	130.00		172.50		204.00	
32	Daman & Diu	1-Sep-2002	130.00		172.50		204.00	
33	Delhi BSES/NDPL	15-Jul-2005	277.20		346.50		434.70	
34	Delhi NDMC	1-Apr-2005	158.00		252.25		327.70	
35	Lakshadweep	1-Sep-2004	100.00		300.00		300.00	
36	Pondicherry	16-Apr-2002	55.00		113.75		150.50	
37	Ahmedabad Elec. Co.	1-Aug-2002	389.40		450.45		482.47	
38	Kolkata (CESC)	1-Apr-2006	280.67		460.28		530.15	
39	D.V.C A) Bihar Area	1-Sep-2000						
	D.V.C B) West Bengal Area	1-Sep-2000						
40	Durgapur Projects Limited	1-Apr-2005	231.00		292.10		292.10	
	Mumbai (BEST)	15-Jul-1997	99.00		288.00		410.05	
	Mumbai (BSES)	1-Apr-2000	169.56		451.31		462.86	
	Mumbai (TATA'S)	1-Jun-2004	202.60		359.05		431.34	

COMMERCIAL CATEGORIES (Rate in Paise per kWh)

Sl. No.	Name of Utility	Commercial 2 KW (300 KWh/month)		Commercial 10KW (1500 KWh/month)		Commercial 30KW (4500 KWh/month)		Commercial 50KW (7500 KWh/month)	
1	Andhra Pradesh	599.33		624.67		628.89		629.73	
2	Assam	527.53		545.48		548.47		549.06	
3	Bihar	743.98	U	805.81		805.81		805.81	
		276.87	R						
4	Chattishgarh	441.96		524.74		524.95		524.99	
5	Gujrat	589.61		626.47		631.83		632.89	
6	Haryana	429.00		429.00		429.00		429.00	
7	Himachal Pradesh	455.50		441.50		425.36		424.19	
8	Jammu & kashmir	277.00		277.00		277.00		277.00	
9	Jharkhand	438.67		438.67		438.67		438.67	
10	Karnataka (Bangalore Metro Area)	637.88		651.18		653.39		653.84	
	Karnataka (Other Areas)	630.87		644.18		646.39		646.83	
11	Kerela*	727.84		889.90		962.74		969.98	
12	Madhya Pradesh	645.77		647.31		647.57		647.62	
13	Maharastra	476.65		530.13		545.44		546.11	
14	Meghalaya	409.33		446.67		452.89		454.13	
15	Orissa	384.80		443.04		452.74		454.69	
16	Punjab	469.30		469.30		469.30		469.30	
17	Rajasthan	556.67		554.00		555.78		556.13	
18	Tamil Nadu	602.00		607.60		608.30		608.63	
19	Uttar Pradesh	452.33	U	452.33		452.33		452.33	
		152.33	R	152.33		152.33		152.33	
20	Uttaranchal	315.00	W	315.00	W	315.00		315.00	
		365.00	M	365.00		365.00		365.00	
21	West Bengal	362.86	U	526.22	U	586.39	U	598.41	U
		357.47	R	525.09	R	586.01	R	598.20	R
22	Arunachal Pradesh	370.00		390.00		393.33		394.00	
23	Goa	327.00		357.00		373.67		377.00	
24	Manipur	302.20		302.20		381.80		381.80	
25	Mizoram Distt HQ &	266.67		266.67		266.67		266.67	

Sl. No.	Name of Utility	Commercial 2 KW (300 KWh/month)	Commercial 10KW (1500 KWh/month)	Commercial 30KW (4500 KWh/month)	Commercial 50KW (7500 KWh/month)
	Sub-Div Area				
	Mizoram Other Areas				
26	Nagaland	398.00	431.60	437.20	438.32
27	Sikkim	335.25	396.45	408.15	410.49
28	Tripura	320.00	400.00	400.00	400.00
29	A&N Islands	406.67	465.33	475.11	477.07
30	Chandigarh	347.00	347.00	347.00	347.00
31	Dadra & Nagar Haveli	270.00	270.00	270.00	270.00
32	Daman & Diu	248.33	265.67	268.56	269.13
33	Delhi BSES/NDPL	596.75	596.75	622.76	622.76
34	Delhi NDMC	462.00	525.00	525.00	525.00
35	Lakshadweep	480.00	480.00	480.00	480.00
36	Pondicherry	274.74	325.34	333.78	335.47
37	Ahmedabad Elec. Co.	613.71	681.88	688.91	691.22
38	Kolkata (CESC)	447.55	575.93	593.94	597.54
39	D.V.C A) Bihar Area				
	D.V.C B) West Bengal Area				
40	Durgapur Projects Limited	280.74	305.83	304.81	304.81
	Mumbai (BEST)	583.00	741.20	986.81	986.81
	Mumbai (BSES)	622.58	662.66	672.85	674.89
	Mumbai (TATA'S)	543.98	498.78	498.78	498.78

- **U: Urban R: Rural B: BMR/PMR Areas O: Other Areas C: Continuous Supply Areas W: With TOD Meter M: Without TOD Meter**
- **in Kerela, Kerela State Electricity Regulatory Commission vide their order dated 16th April, 2004 has approved continuation of the existing tariffs (effective from 01.10.2002) and other charges from the Kerela State Electricity Board**
- **The statement has been prepared on the basis of electricity tariff, electricity duty /Tax and FCA as reported to F.S & A Division, CEA upto 01.08.2006.**
- **In respect of Delhi, the latest rates applicable w.e.f. 15.07.2005 have been given above.**

AGRICULTURE, SMALL INDUSTRY & MEDIUM INDUSTRY CATEGORIES**(Rate in Paise per kWh)**

Sl. No.	Name of Utility	Agriculture 5 HP (1000 KWh/month)		Agriculture 10 HP (2000 KWh/month)		Small Industry 10 KW (1500 KWh /month)		Medium Industry 50 KW (7500 KWh /month)	
1	Andhra Pradesh	23.75		21.88		415.40		414.33	
2	Assam	215.79		276.12		345.73	U	428.10	
						268.35	R		
3	Bihar	40.50		40.50		703.65		743.79	
4	Chattishgarh	32.50		37.50		274.72		295.96	
5	Gujrat	57.75		57.75		450.02		465.81	
6	Haryana	17.50		17.50		438.00		438.00	
7	Himachal Pradesh	182.85		181.80		401.25		440.57	
8	Jammu & kashmir	102.00		102.00		157.00		157.00	
9	Jharkhand	28.75		28.75		405.62		405.62	
	Karnataka (Bangalore Metro Area)	45.00		55.00		418.40		521.47	
10	Karnataka (Other Areas)	105.00		115.00		413.71		512.08	
11	Kerela*	74.80		74.80		390.50		390.50	
12	Madhya Pradesh	205.00		212.50		396.13		521.00	
13	Maharastra	75.00		75.00		254.90		254.90	
14	Meghalaya	116.00		116.00		383.33		408.67	
15	Orissa	102.00		102.00		332.40		335.81	
16	Punjab	0.00		0.00		374.70		413.20	
17	Rajasthan	75.60		74.55		421.28		459.68	
18	Tamil Nadu	0.00		0.00		458.85		486.57	
19	Uttar Pradesh	224.00	U	224.00	U	452.33	U	452.33	U
		45.00	R	45.00	R	408.00	R	395.42	R
20	Uttaranchal	78.00		76.80		305.09		305.09	
		65.40		64.20					
21	West Bengal	191.10		191.10		342.13	U	468.49	U
						327.07	R	447.91	R
22	Arunachal Pradesh					345.00		353.33	

Sl. No.	Name of Utility	Agriculture 5 HP (1000 KWh/month)	Agriculture 10 HP (2000 KWh/month)	Small Industry 10 KW (1500 KWh /month)	Medium Industry 50 KW (7500 KWh /month)
23	Goa	102.00	102.00	257.00	297.00
24	Manipur	272.20	272.20	287.20	381.80
25	Mizoram Distt HQ & Sub-Div Area	69.94	69.94	208.33	208.33
	Mizoram Other Areas				
26	Nagaland	150.00	150.00	280.00	293.33
27	Sikkim	247.50	326.25	414.00	U 288.18
				300.00	R
28	Tripura	75.00	120.00	240.00	270.00
29	A&N Islands	90.00	90.00	316.67	327.33
30	Chandigarh	165.00	165.00	350.33	387.00
31	Dadra & Nagar Haveli	55.00	55.00	230.00	243.40
32	Daman & Diu	55.00	55.00	230.00	262.34
33	Delhi BSES/NDPL	162.20	162.20	560.00	560.00
34	Delhi NDMC			431.00	431.00
35	Lakshadweep			330.00	330.00
36	Pondicherry	20.67	19.83	247.52	257.50
37	Ahmedabad Elec. Co.	327.54	327.54	396.72	446.40
38	Kolkata (CESC)			390.08	480.32
39	D.V.C A) Bihar Area				
	D.V.C B) West Bengal Area				
40	Durgapur Projects Limited	271.00	269.00	280.99	302.43
	Mumbai (BEST)			635.38	804.41
	Mumbai (BSES)			585.65	567.35
	Mumbai (TATA'S)			470.36	470.36

HEAVY INDUSTRY, RAILWAY TRACTION (Rate in Paise per kWh)

Sl. No.	Name of Utility	Heavy Industry 10000 KW , 60% LF (4380000 KWh /month)		Heavy Industry (33 KV) 20000 KW , 60% LF (8760000 KWh /month)		Railway Traction 12500 KW (25000000 KWh/month)	
1	Andhra Pradesh	418.60		407.68		420.03	
2	Assam	388.41		378.00		NA	
3	Bihar	469.44		460.06		530.51	at 25 KV
						524.51	at 132 KV
4	Chattishgarh	480.89		472.15		477.78	at 132 KV
5	Gujrat	557.35		556.91		549.12	at 132 KV
6	Haryana	419.00		407.00		444.29	at 11 KV
7	Himachal Pradesh	326.21		321.30		NA	
8	Jammu & kashmir	157.00		NA		NA	
9	Jharkhand	412.95		392.95		516.50	at 25 KV
						477.69	at 132 KV
	Karnataka (Bangalore Metro Area)	501.07		500.62		485.88	
10	Karnataka (Other Areas)	498.25		497.79		485.88	
11	Kerela*	385.02				360.29	at 110 KV
12	Madhya Pradesh	509.09		502.61		468.33	at 132/220 KV
13	Maharastra	399.55	B			385.00	
		388.56	O				
14	Meghalaya	253.53					
15	Orissa	357.05		357.05		413.48	at 25/33 KV
16	Punjab	413.20		400.92		447.00	at 132 KV
17	Rajasthan	463.83		460.65		451.00	
18	Tamil Nadu	462.61		452.11		526.47	
19	Uttar Pradesh	438.36	U	419.38	U	472.22	below 132 KV
		395.42	R	378.34	R	452.78	132 KV and above

Sl. No.	Name of Utility	Heavy Industry 10000 KW , 60% LF (4380000 KWh /month	Heavy Industry (33 KV) 20000 KW , 60% LF (8760000 KWh /month	Railway Traction 12500 KW (25000000 KWh/month)	
20	Uttaranchal	282.10	275.68		
21	West Bengal	442.18	442.18	453.62	at 25 KV
				424.22	at 132 KV
22	Arunachal Pradesh	394.89			
23	Goa	342.29	342.29		
24	Manipur	336.09	336.09		
25	Mizoram Distt HQ & Sub-Div Area	71.35	71.35		
	Mizoram Other Areas				
26	Nagaland	314.97			
27	Sikkim	312.30			
28	Tripura				
29	A&N Islands				
30	Chandigarh	360.70	350.21		
31	Dadra & Nagar Haveli	271.00			
32	Daman & Diu	261.00			
33	Delhi BSES/NDPL	560.30	547.32	517.26	at 11 KV
34	Delhi NDMC			576.00	
35	Lakshadweep				
36	Pondicherry	332.72			
37	Ahmedabad Elec. Co.	429.83			
38	Kolkata (CESC)	460.66	444.15	388.08	
39	D.V.C A) Bihar Area	364.55	350.71	451.72	at 33 KV
	D.V.C B) West Bengal Area	389.21	374.21	432.83	at 132 KV
40	Durgapur Projects Limited	319.46			
	Mumbai (BEST)	505.29			
	Mumbai (BSES)	342.64			
	Mumbai (TATA'S)	445.57	445.57	478.40	at 33/22/11/6.6 KV