

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

1. **Shri Ashok Basu, Chairman,**
2. **Shri G.S. Rajamani, Member**
3. **Shri K.N.Sinha, Member**

**Petition No.11/2002**

**In the matter of**

Petition for approval of tariff for Chukha Transmission System in Eastern Region for the period 1.4.2001 to 31.3.2004.

**And in the matter of**

Power Grid Corporation of India Ltd.

**.... Petitioner**

Vs

1. Bihar State Electricity Board
2. West Bengal State Electricity Board
3. Grid Corporation of Orissa Ltd.
4. Damodar Valley Corporation
5. Power Dept., Govt. of Sikkim
6. Jharkhand State Electricity Board

**.....Respondents**

The following were present

1. Shri Prashant Sharma, PGCIL
2. Shri S. S. Sharma, PGCIL
3. Shri U.K. Tyagi, PGCIL
4. Shri Manoj Rastogi, PGCIL
5. Shri A.K. Nagpal, PGCIL
6. Shri S. Mehrotra, Dy. Mgr (F), PGCIL
7. Shri S.K. Jain, Manager (Law), PGCIL
8. Shri J Sridharan, ED(P), PGCIL
9. Shri Mahesh K.R., PGCIL
10. Shri R.K. Vohra, ED (CommI), PGCIL
11. Shri T.P.S. Bawa, SE, PSEB
12. Shri M Kumar, EE, UPPCL
13. Shri R.N. Pathak, ACE(Comm.-LD), RVPNL
14. Shri K.K. Mittal, XEN (ISP), RVPNL

**ORDER**

**(DATE OF HEARING: 12.12.2002)**

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff in respect of the Chukha Transmission System (hereinafter referred to as "the Transmission System"), in Eastern Region for the period from 1.4.2001 to

31.3.2004 based on terms and conditions of tariff contained in the Commission's notification dated 26.3.2001, (hereinafter referred to as "the notification dated 26.3.2001").

2. The Transmission System is associated with evacuation of power generated from Chukha Hydroelectric Power Project situated in Bhutan. The Transmission System was initially implemented by NHPC and was subsequently taken over by the petitioner. The Central Government in Ministry of Power accorded its approval to the revised cost estimates of Rs. 139.09 crore, including IDC of Rs. 8.24 crore vide its letter dated 4.9.1998. The approved scope of work covered under the Transmission System and the dates of commercial operation of the various elements are as under:

<b>Name of Transmission line</b>	<b>Date of Commercial Operation</b>
Malda-Farakka 400 kV D/C transmission line	September 1986
Malda-Dalkhola 220 kV D/C transmission line	September 1986
Dalkhola-Purnia 220 kV D/C transmission line	November 1986
Dalkhola-Siliguri 220 kV D/C transmission line	September 1986
Siliguri-Birpara 220 kV D/C transmission line	June 1986
Birpara-Salakati 220 kV D/C transmission line	February 1987
Birpara-Puntsholing 220 kV D/C transmission line	July 1986
Birpara- Puntsholing 220 kV S/C transmission line	October 1990

3. The tariff for the Transmission System was notified by Ministry of Power vide its notification dated 14.5.1999, valid up to 31.3.2002, at an admitted cost of Rs. 138.74 crore. However, as the terms and conditions for determination of tariff notified by the Commission have come into effect on 1.4.2001, the transmission charges approved

by Ministry of Power were rendered valid up to 31.3.2001. The present petition for approval of tariff for the period from 1.4.2001 to 31.3.2004 has been filed against the above backdrop.

4. Based on the above-noted facts, the petitioner has sought approval for transmission charges as under:

(Rs. in lakh)			
<b>Transmission Tariff</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>
Interest on Loan	166.93	132.16	97.38
Interest on Working Capital	96.93	100.45	104.12
Depreciation	386.38	386.38	386.38
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	843.52	843.52	843.52
O & M Expenses	1669.90	1770.92	1874.53
<b>Total</b>	<b>3163.66</b>	<b>3233.43</b>	<b>3305.93</b>

5. In addition, the petitioner has prayed for approval of other charges like Income Tax, incentive, Development Surcharge, late payment surcharge, other statutory taxes, levies, cess, filing fee, etc in terms of the notification.

### **CAPITAL COST**

6. As laid down in the notification dated 26.3.2001, the project cost as approved by CEA or an appropriate independent agency, other than Board of Directors of the generating company, as the case may be, shall be the basis for computation of tariff. As already noticed, the tariff for the Transmission System was notified by Ministry of Power vide its notification dated 14.5.1999 by considering cost of Rs. 138.74 crore. Therefore, for the purpose of present petition, the capital cost as considered by Ministry of Power in its notification dated 14.05.1999 has been adopted.

### **SOURCES OF FINANCING. DEBT – EQUITY RATIO**

7. As per Para 4.3 of the notification dated 26.3.2001, capital expenditure of the transmission system shall be financed as per approved financial package set out in

the techno-economic clearance of CEA or as approved by an appropriate independent agency, as the case may be. The petitioner has claimed tariff by taking debt and equity in the ratio of 50:50. It is pointed out on behalf of the respondents that taking debt and equity as claimed by the petitioner will result into higher return on equity (ROE). The respondents have submitted that equity of 20% should be considered for the purpose of fixation of tariff. In the case in hand, the assets were commissioned before 01.4.1997 and Ministry of Power while notifying tariff vide notification dated 14.5.1999 had considered debt and equity on notional basis in the ratio of 50:50 of the Net Fixed Assets as on 1.4.1997 in view of the notification dated 16.12.1997. Therefore, the debt-equity ratio of 50:50 has been considered for determination of tariff in the present petition. Accordingly equity has been taken as Rs. 5272.00 lakh notionally as on 1.4.1997. On the same basis, opening gross loan of Rs. 5272.00 lakh as on 1.4.1997 has been considered.

#### **INTEREST ON LOAN**

8. As provided in the notification dated 26.3.2001, interest on loan capital is to be computed on the outstanding loans, duly taking into account the schedule of repayment, as per financial package approved by CEA or any independent agency. In keeping with this provision, while calculating Interest on loan, closing balance of the notional loan as on 31.03.2001 has been taken as opening balance of the loan as on 1.4.2001. Repayment of the loan during the year has been worked out in accordance with the following formula or as per the actual repayment during the year as claimed by the petitioner, whichever is higher:

$$\frac{\text{Actual repayment during the year} \times \text{normative net loan at the beginning of the year}}{\text{actual net loan at the beginning of the year}}$$

9. Based on the above methodology, repayment of loan during 2001-2002 has been arrived at Rs. 2047.68 lakh, and has been considered. The loan gets liquidated during 2001-02 and as such no repayments during 200-03 and 2003-04 have been considered.

10. On the basis of actual rate of interest on notional average loan the weighted rate of interest on loan has been worked out applied to arrive at the interest on loan.

The details of calculation of interest are as given below:

### Calculation of Interest

(Rs. in Lakh)

<b>Details of Loan</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
No. of days in the Year	365	365	366
<b>NHPC Bonds</b>			
Gross Normative Loan –Opening	5272.00	5272.00	5272.00
Cumulative Normative Repayment up to Previous Year	3224.32	5272.00	5272.00
Net Actual Loan-Opening	5.96	0.00	0.00
Actual Repayment	5.96	0.00	0.00
Net Normative Loan-Opening	2047.68	0.00	0.00
Normative Repayment	2047.68	0.00	0.00
Repayment considered for calculation =max(actual, Normative repayment)	2047.68	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	1023.84	0.00	0.00
Rate of Interest	9.00%	9.00%	9.00%
<b>Interest</b>	<b>92.15</b>	<b>0.00</b>	<b>0.00</b>

## **DEPRECIATION**

11. Based on the notification dated 26.3.2001, the petitioner is entitled to claim depreciation. The salient provisions for calculation of depreciation as per the notification dated 26.3.2001 are reproduced below:

- (i) The value base for the purpose of depreciation shall be the historical cost of the asset.
- (ii) Depreciation shall be calculated annually as per straight-line method at the rate of depreciation as prescribed in the Schedule attached to the notification dated 26.3.2001

Provided that the total depreciation during the life of the project shall not exceed 90% of the approved original cost. The approved original cost shall include additional capitalisation on account of foreign exchange rate variation also.

- (iii) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.
- (iv) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro-rata basis.
- (v) Depreciation against assets relating to environmental protection shall be allowed on case-to-case basis at the time of fixation of tariff subject to the condition that the environmental standards as prescribed have been complied with during the previous tariff period.

12. The petitioner has claimed the depreciation on the capital expenditure in accordance with above principles. In the calculation, depreciation has been worked

out on the capital cost as per para 3 above and the rates as prescribed in the Commission's notification dated 26.03.2001. For working out cumulative depreciation the depreciation as per last tariff setting has been considered.

13. It is noted that repayment of the entire notional loan considered for tariff calculation is over in the year 2001-02. Therefore, depreciation for the years 2002-03 and 2003-04 is to be calculated by spreading the same over the balance useful life of the asset. The elements of the Transmission System were declared under commercial operation as indicated below:

<b>Name of Transmission line</b>	<b>Date of Commercial Operation</b>
Malda-Farakka 400 kV D/C transmission line	September 1986
Malda-Dalkhola 220 kV D/C transmission line	September 1986
Dalkhola-Purnia 220 kV D/C transmission line	November 1986
Dalkhola-Siliguri 220 kV D/C transmission line	September 1986
Siliguri-Birpara 220 kV D/C transmission line	June 1986
Birpara-Salakati 220 kV D/C transmission line	February 1987
Birpara-Puntsholing 220 kV D/C transmission line	July 1986
Birpara- Puntsholing 220 kV S/C transmission line	October 1990

14. The assets had thus been in operation for about 14 years as on 1.4.2001, the starting point being taken as 1.4.1987 since the assets were commissioned during June 1986 to February 1987. As per the notification dated 26.3.2001, the useful life of the transmission line at 66 kV and above is 35 years, for sub-station equipment 25 years. The life prescribed for communication equipment is (PLCC) is 15 years and that for buildings it is 50 years. The assets covered in the present petition are

transmission lines, sub-stations, the communication equipment and the buildings. Therefore, the useful life of the transmission system is to be the average life of all the assets. The weighted average life of the transmission system has been calculated by taking the completion cost of the different assets as given below:

Item	Completion cost (Rs in lakh)	Useful life (Years)
Line cost	7658	35
Substation cost	4544	25
PLCC	95	15
Buildings	1127	50

$$\begin{aligned}\text{Weighted average life} &= \frac{7658 \times 35 + 4544 \times 25 + 95 \times 15 + 1127 \times 50}{7658 + 4544 + 95 + 1127} \\ &= 32.73 \text{ years (say 33 years)}\end{aligned}$$

15. The balance useful life as on 1.4.2001 has thus been arrived at 19 (33 – 14) years.

16. Based on the above, depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 13874.00 lakh at the rates as prescribed in the notification dated 26.3.2001. While approving depreciation component of tariff, the weighted average depreciation rate of 2.78% has been worked out. For working out cumulative depreciation, the depreciation as per the Ministry of Power notification dated 14.5.1999 has been taken into consideration. The break up of the capital cost is not available in the Ministry of Power notification dated 14.5.1999. Therefore, the same has been considered as per the details furnished by the petitioner. The calculations in support of weighted average rate of depreciation of 2.78% are appended hereinbelow:



(Rs. in lakh)

<b>Capital Expenditures as on 31.03.2001</b>	<b>Total</b>	<b>FERV up to 31.3.2001</b>	<b>Total Including FERV</b>	<b>Approved capital cost</b>	<b>Rate of Depreciation</b>	<b>Amount of Depreciation</b>
Land	450.00	0.00	450.00	478.34	0%	0.00
Building & Other Civil Works	1127.00	0.00	1127.00	1197.97	1.80%	20.29
Transmission Line	7658.00	0.00	7658.00	7445.06	2.57%	196.81
Sub-Station Equipment	4544.00	0.00	4544.00	4693.03	3.60%	163.58
PLCC	95.00	0.00	95.00	94.6	6.00%	5.70
<b>Total</b>	<b>13874.00</b>	<b>0.00</b>	<b>13874.00</b>	<b>13909.00</b>		<b>386.38</b>
<b>Weighted Average Rate of Depreciation</b>	<b>13874.00</b>	<b>0.00</b>				<b>2.78%</b>

17. Accordingly, depreciation has been allowed as calculated below:

(Rs. in lakh)

		<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Rate of Depreciation	2.78%			
Depreciable Value	12486.60			
Balance Useful life of the asset	19.00	19.00	18.00	17.00
Remaining Depreciable Value		5932.28	5492.95	5187.79
<b>Depreciation</b>		<b>386.38</b>	<b>305.16</b>	<b>305.16</b>

### **ADVANCE AGAINST DEPRECIATION**

18. In addition to allowable depreciation, the petitioner becomes entitled to Advance Against Depreciation when originally scheduled loan repayment exceeds the depreciation allowable as per schedule to the notification. Advance Against Depreciation is computed in accordance with the following formula:

AAD = Originally scheduled loan repayment amount subject to a ceiling of 1/12<sup>th</sup> of original loan amount minus depreciation as per schedule.

19. The petitioner has claimed Advance Against Depreciation on the basis of
- (i) 1/12th of gross loan worked out as 50% of the gross block admitted by Ministry of Power in the petition of previous tariff setting,
  - (ii) Repayment of loans during the year, and
  - (iii) depreciation as claimed in the petition.

20. The entitlement of the petitioner has been considered in accordance with the notification. In the calculation, Advance Against Depreciation has been worked out on the basis of gross loan and repayment (including of notional loan) and depreciation as worked out above. The petitioner's entitlement to Advance Against Depreciation has been calculated as shown below:

(Rs. in lakh)			
<b>Advance Against Depreciation</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
1/12th of Gross Loan(s)	439.33	439.33	439.33
Scheduled Repayment of the Loan(s)	2047.68	0.00	0.00
Minimum of the above	439.33	0.00	0.00
Depreciation during the year	386.38	305.16	305.16
<b>Advance Against Depreciation</b>	<b>52.95</b>	<b>0.00</b>	<b>0.00</b>

### **OPERATION & MAINTENANCE EXPENSES**

21. In accordance with the notification, Operation and Maintenance expenses, including expenses on insurance, if any, are to be calculated as under:

- i) Where O&M expenses, excluding abnormal O&M expenses, if any, on sub-station (OMS) and line (OML) are separately available for each region, these shall be normalised by dividing them by number of bays

and line length respectively. Where data as aforesaid is not available, O&M expenses in the region are to be apportioned to the sub-station and lines on the basis of 30:70 ratio and these are to be normalised as below:

$$\text{O\&M expenses per Unit of the line length in Kms (OMLL)} = \frac{\text{Expenses for lines (OML)}}{\text{Average line length in Kms (LL)}}$$

$$\text{O\&M expenses for sub-stations (OMBN)} = \frac{\text{O\&M expenses for substations (OMB)}}{\text{Average number of bays (BN)}}$$

- ii) The five years average of the normalised O&M expenses for lines and for bays for the period 1995-96 to 1999-2000 is to be escalated at 10% per annum for two years (1998-99 and 1999-2000) to arrive at normative O&M expenses per unit of line length and per bay for 1999-2000.
- iii) The normative O&M per unit length and normative O&M per bay for the year 1999-2000 for the region derived in the preceding paragraph is to be escalated @ 6% per annum to obtain normative values of O&M expenses per unit per line length and per bay in the relevant year. These normative values are to be multiplied by line length and number of bays (as the case may be) in a given system in that year to compute permissible O&M expenses for the system.
- iv) The escalation factor of 6% per annum is to be used to revise normative base figure of O&M expenses. Any deviation of the escalation factor computed from the actual inflation data that lies within 20% of the notified escalation factor of 6% shall be absorbed by utilities/beneficiaries.

22. The different elements of Operation & Maintenance expenses have been considered in the succeeding paragraphs in the light of provisions of the notification based on the data available since 1995-96.

### **Employee Cost**

23. The petitioner has, inter alia, claimed incentive and *ex gratia* as a part of employee cost. The petitioner was asked to specify the amount of minimum statutory bonus paid to its employees under the Payment of Bonus Act. The petitioner vide its affidavit dated 6.2.2003 has stated that the incentive paid to employees does not include minimum statutory bonus. The petitioner has further stated that the *ex gratia* was being paid in lieu of bonus, as is customary and a normal practice followed in private and public sectors. The petitioner has also furnished a write-up on Incentive scheme in support of the claim. It has been clarified on behalf of the petitioner that even the top management of the petitioner company is paid incentive and *ex gratia* included as a part of employee cost in O&M expenses claimed. The payment of incentive other than the statutory minimum bonus is at the discretion of the petitioner company and should be borne out of its profits or incentive earned from the respondents for higher availability of the Transmission System. In view of the above, the incentive and *ex gratia* payments made by the petitioner to its employees have been kept out of consideration for calculation of employee cost.

24. The petitioner was directed to furnish details of the arrears on account of pay and allowances for the period prior to 1995-96, but paid between 1995-96 to 1999-2000. The petitioner has submitted the details of such arrears, amounting to Rs.48.21 lakh and Rs 53.17 lakh paid for Eastern Region during 1995-96 and 1996-97.

Similarly, the arrears for the previous years included in the employee cost for 1995-96 and 1996-97 for Corporate Office were stated to be Rs. 9.61 lakh and Rs. 35.60 lakh. The petitioner has also submitted that the arrears on account of pay revision from 01.01.97 to 31.03.2000 have been paid during the years 2000-01 and 2001-02 also. The amounts of these arrears as claimed by the petitioner are Rs.159.26 lakh and Rs.(-) Rs.4.39 lakh for Eastern Region and Rs. 297.13 lakh and Rs. 109.95 lakh for the Corporate Office for the years 2000-01 and 2001-02 respectively. The petitioner has prayed that the arrears on account of pay and allowances for the period prior to 1995-96 should be deducted while those pertaining to the period from 1995-96 to 1999-2000 but paid subsequent to 1999-2000 should be added to O&M charges. The petitioner has argued that since these pay arrears pertain to the period being considered for fixation of normative O&M, the arrears should be considered while fixing the normative O&M. We find the submission of the petitioner to be logical and have considered the submission in the calculation of employee cost.

### **Repair & Maintenance Expenses**

25. WBSEB has stated that the petitioner has not furnished sufficient explanation for about 81% increase repair and maintenance expenses during 1997-98 over those of 1996-97. It is noted that the petitioner has explained that this variation is due to major repair in Kahalgaon-Biharshariff line due to collapse of tower. . Major repair is not a regular phenomenon, and hence expenses on this account have to be excluded from the process of normalisation. Therefore, "repair and maintenance" expenses in 1998-99 have been limited to Rs.399.68 lakh (20% over and above the "repair and maintenance" expenses for the year 1996-97). However, if any major repairs are undertaken during the tariff period covered by this order, the petitioner may approach

the Commission with proper justification to claim the actual expenses as a part of O&M expenses.

### **Power Charges**

26. In case of Corporate Office, the power charges as claimed by the petitioner have been considered in the calculation of O&M expenses. In case of Eastern Regional Transmission System (ERTS) the petitioner was directed to submit break up of power charges between substation facilities and the residential colonies. The petitioner in its affidavits filed in these proceedings has submitted the break up. Since, power charges for residential quarters in the colony are recoverable from the employees, such charges amounting to Rs 13.96 lakh, Rs 15.19 lakh, Rs 22.4 lakh, Rs 48.77 lakh and Rs 32.47 lakh for the five years from 1995-96 to 1999-2000 have been deducted from the total power charges claimed by the petitioner for the purpose of normalisation.

### **Insurance**

27. It has been noted that the petitioner has a policy of self-insurance for which it has created the insurance reserve. The insurance charges claimed by the petitioner are credited to the insurance reserve. The petitioner was directed to furnish the management policy on creation of insurance reserve, items of loss secured and the conditions thereto. The petitioner has submitted insurance policy of the petitioner company under affidavit dated 6.2.2003. The key features of the policy submitted by the petitioner are as under:

- (a) Insurance reserve is created @ 0.1% on gross value of fixed assets at the close of the year, to meet the future losses arising from uninsured

risks, except machinery breakdown for valve hall of HVDC, and fire risk of HVDC equipment and SVC sub-stations.

(b) The policy generally covers following:

- (i) Fire, lightning, explosion/implosion, and bush fire
- (ii) Natural calamity: flood, earthquake, storm, cyclone, typhoon, tempest, hurricane, tornado, subsidence and landslide
- (iii) Riot, strike/ malicious and terrorist damage
- (iv) Theft, burglary, Missile testing equipment, impact damage due to rail/ road or animal, aircraft and articles dropped there from.

(c) The losses of assets caused by the above causes are adjusted against insurance reserve as per the corporation guidelines.

(d) The amount so set aside in the insurance reserve has not been separately claimed from the respondents and the expenses have been met from the permitted O&M charges under the tariff.

28. The petitioner has stated that the policy of self-insurance has also been followed by NHPC, where 0.5% per annum of the gross block of O&M projects is transferred to self-insurance reserve account. It has also been informed that the rate of 0.1% as booked under O&M expenses towards self-insurance reserve is lower than the insurance premium (0.22%) being charged by the insurance companies for the risks covered in the self-insurance policy. In support of this claim, the petitioner has placed on record a letter from Reliance General Insurance Company quoting for the insurance rate of the assets covered in the self-insurance policy of the petitioner company.

29. In view of the explanation furnished on behalf of the petitioner, the insurance charges as claimed have been considered in O&M expenses. We, however, make it explicit that the self-insurance provided by the petitioner is for replacement of the damaged assets and the beneficiaries shall not be charged anything in case of damage due to any of the events mentioned in the insurance policy.

30. In case of Training & Recruitment expenses, Communication expenses, Traveling, Rent, and Miscellaneous Expenses as claimed by the petitioner have been considered for calculation, both in the case of the ERTS as well as Corporate Office.

#### **Other Expenses**

31. In case of ERTS, the petitioner has stated that the provisions are made for the losses and shortage of store materials and for the doubtful advances paid to contractors. Since all these items are controllable by the petitioner and reflect the managerial efficiency of the petitioner, the provisions made in case of ERTS on this account have not been considered as admissible for reimbursement. In case of Corporate Office, the following expenses have not been admitted for reimbursement:

- (a) Donation of Rs. 0.05 lakh, Rs. 30 lakh, Rs. 34.78 lakh and Rs. 600.03 lakh for the years 1995-96, 1996-97, 1998-99 and 1999-2000, as these donations are not related to transmission business. The expenditure on account of the donations need be borne by the petitioner out of other profits of the corporation.



(b) Provisions of Rs. 1107.61 lakh, Rs. 385.8 lakh and Rs. 0.27 lakh for the year 1996-97, 1997-98 and 1999-2000. These provisions were made for the loss of stores in Eastern Region and North Eastern Region, for bad and doubtful debt in Northern Region and for shortage of store in North Eastern Region. The petitioner has stated that provision of loss of store in Eastern Region (Rs 863.16 lakh in 1996-97) and provision of bad and doubtful debt in Northern Region (Rs 385.80 lakh in 1997-98) were written back during subsequent years in the regional books of account. In view of this, the petitioner has submitted that these expenses need not be considered while fixing the O&M of the respective regions. As all these items are controllable by the petitioner and reflect the managerial efficiency. However, an amount of Rs. 11.14 lakh on account of fire at the corporate office in 1998-99 has been considered as admissible under the head provisions.

(c) Legal expenses amounting to Rs. 2.65 lakh in the Corporate Office on legal opinion on CERC matters have not been allowed in line with the Commission's policy of allowing only the fees for the petitions filed in the Commission. However, other legal expenses for disputes related to compensation, contracts, service matters and labour cases have been admitted.

### **Recoveries**

32. The details of the recoveries for the ERTS and the Corporate Office were furnished by the petitioner vide affidavit dated 6<sup>th</sup> February 2003. The petitioner in the

aforesaid affidavit also furnished the “complete details” of the recoveries for the ERTS. According to the petitioner, the income from sale of bid documents has already been adjusted for under the sub-head Tender Expenses under the head Other Expenses. Hence, income under this sub-head has not been considered in the recovery for the ERTS as well as Corporate Office. Similarly, electricity charges recovered/recoverable from employees residential buildings and other residential buildings have not been considered under the head “recovery” as the power charges for colony consumption have been deducted in case of the ERTS.

### **Allocation of Corporate Office Expenses to Various Regions**

33. The petitioner has submitted the method for allocation of Corporate Office expenses to various Regions. The key steps in the apportionment of Corporate Office expenses among the regions are as under:

- i) Expenses booked under Training & Recruitment, Directors sitting fees, provisions, R&D, Write off of fixed assets/ non-operating expenses and donations are considered exclusively as O&M expenses.
- ii) After deducting these exclusive O&M expenses, the balance Corporate Office expenses are allocated in the ratio of Transmission charges to annual Capital outlay to obtain expenses allocated to O&M and construction activity.

- iii) The allocation to O&M activity obtained in step (ii) is added to exclusive O&M expenses obtained in step (i) to arrive at total O&M expenses in the Corporate Office.
- iv) RLDC expenses are then deducted from the total O&M expenses obtained in step (iii) to arrive at O&M expenses allocated to transmission business.
- v) O&M expenses allocated to transmission business are then allocated to various regions in the ratio of their respective transmission charges.

34. The methodology adopted by the petitioner for allocation of Corporate Office O&M expenses has been approved and followed in the calculation of O&M expenses. The comparative statement of O&M expenses claimed by the petitioner and those allowed and considered for the years 1995-96 to 1999-2000 for the purpose of computation of O&M expenses for the tariff period are given herein below:

**DETAILS OF O&M EXPENSES FOR POWERGRID SYSTEM IN  
EASTERN REGION**

								(All Figures in Rs. Lakhs)		
	<b>1995-96</b>		<b>1996-97</b>		<b>1997-98</b>		<b>1998-99</b>		<b>1999- 2000</b>	
<b>Items</b>	As per Petitione r	As allowed for	As per Petitione r	As allowed for	As per Petitione r	As allowed for	As per Petitione r	As allowed for	As per Petitione r	As allowed for
Employee Cost	1003.20	843.52	1236.89	1108.76	1672.90	1600.67	1970.16	1907.01	2551.38	2167.94
Repair & Maintenance	263.18	263.18	333.07	333.07	602.04	399.68	407.97	407.97	533.34	533.34
Power Charges	302.04	288.08	367.49	352.30	400.30	377.90	378.85	330.08	407.02	374.55
Training & Recruitment	15.17	15.17	9.14	9.14	5.12	5.12	18.25	18.25	2.32	2.32
Communications	106.71	106.71	99.94	99.94	113.20	113.20	112.85	112.85	86.81	86.81
Travelling	193.08	193.08	191.47	191.47	228.42	228.42	236.18	236.18	270.55	270.55
Printing & Stationery	15.82	15.82	15.84	15.84	18.06	18.06	20.69	20.69	16.00	16.00
Rent	14.06	14.06	13.64	13.64	16.16	16.16	16.33	16.33	15.76	15.76
Miscellaneous Expenses	210.50	210.50	269.26	269.26	283.90	283.90	375.72	375.72	533.27	533.27
Insurance	6.78	6.78	7.99	7.99	98.26	98.26	102.58	102.58	104.55	104.55
Others	76.41	71.51	64.24	60.17	176.36	120.52	493.99	395.28	75.44	75.44
Corporate Expenses Allocation	536.01	524.66	414.68	204.09	391.89	338.04	349.15	348.38	402.73	325.67
<b>TOTAL</b>	<b>2742.96</b>	<b>2553.07</b>	<b>3023.65</b>	<b>2665.67</b>	<b>4006.61</b>	<b>3599.94</b>	<b>4482.72</b>	<b>4271.32</b>	<b>4999.17</b>	<b>4506.20</b>
Less : Recoveries		23.78		64.49		13.18		10.01		15.64
<b>Net O&amp;M Expenses</b>	<b>2742.96</b>	<b>2529.29</b>	<b>3023.65</b>	<b>2601.18</b>	<b>4006.61</b>	<b>3586.76</b>	<b>4482.72</b>	<b>4261.31</b>	<b>4999.17</b>	<b>4490.56</b>

**NOTE:** Only charges for power consumption at sub-stations has been considered admissible

### Method of Normalizing O&M Expenses

35. The following formulae for calculation of normative O&M expenses as per the notification, as amended vide Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2003 published in the Gazette of India on 2.6.2003 have been followed

$$AVOMLL = \frac{1}{5} \sum_{i=1995-1996}^{1999-2000} \frac{|OML_i|}{|LL_i|}$$
$$AVOMBN = \frac{1}{5} \sum_{i=1995-1996}^{1999-2000} \frac{|OMS_i|}{|BN_i|}$$

Where:

AVOMLL and AVOMBN are average normalized O&M expenses per Ckt. km of line length and per bay respectively.

OML<sub>i</sub> and OMS<sub>i</sub> are O&M expenses for the lines and for the sub-stations for the i<sup>th</sup> year respectively.

LL<sub>i</sub> and BN<sub>i</sub> are the total line length in Ckt. km and total number of bays in the i<sup>th</sup> year respectively.

In the process of normalisation, abnormal expenses such as expenses on account of additional security have to be deducted as per the notification, for which the petitioner may file separate petition. Accordingly, the amount of Rs 23.33 lakhs, Rs 0.68 lakhs, Rs 24.78 lakhs and Rs 143.56 lakhs spent on CISF security at Salakati

Sub-station of the Chukha Transmission System for the years 1996-97 to 1999-2000 has been deducted from the total O&M expenses for the region.

36. As per the above method, AVOMLL and AVOMBN are calculated based on the data for the years 1995-96 to 1999-2000. These normalised averages correspond to the year 1997-98. After escalating these averages by 10% per annum for two years, the normative O&M expenses for the base year 1999-2000 have been obtained. Normative O&M expenses for subsequent years are obtained by escalating these normative figures by 6% per annum. Following table gives comparison of the normative O&M expenses as calculated by the petitioner and as per our calculations allowed for the base year i.e. 1999-2000 and afterwards:

### NORMALIZED O&M EXPENSES FOR EASTERN REGION

											(All Figures in Rs. Lakhs)	
S. NO.	Items	1995-96	1996-97	1997-98	1998-99	1999-2000	Total for five years 95-96 to 99-00	99-00	2000-01	2001-02	2002-03	2003-04
1	Total O&M expenses(Rs. Lakhs)	2529.29	2601.18	3586.76	4261.31	4490.56						
2	Abnormal O&M expenses	0.00	23.33	0.68	24.78	143.56	192.35					
3	Normal O&M expenses (S.No. 1 -S.NO. 2)	2529.29	2577.85	3586.08	4236.53	4347.00						
4	<b>OML</b> (O&M for lines)= 0.7 X S. NO.3	1770.50	1804.49	2510.25	2965.57	3042.90	<b>12093.71</b>					
5	<b>OMS</b> (O&M for substation) = 0.3XS.NO.3	758.79	773.35	1075.82	1270.96	1304.10	<b>5183.02</b>					
6	Line length at beginning of the year in Kms.	4418.70	4418.70	4418.70	4482.70	4665.70						
7	Line length added in the year in Kms.	0.00	0.00	64.00	183.00	86.00						
8	Line length at end of the year in Kms.	4418.70	4418.70	4482.70	4665.70	4751.70						
9	LL (Average line length in the Region)	4418.70	4418.70	4450.70	4574.20	4708.70	<b>22571.00</b>					
10	NO. of bays at beginning of the year	76	88	88	90	92						

11	NO. of bays added in the year	12	0	2	2	1						
12	NO. of bays at the end of the year	88	88	90	92	93						
13	BN (Average number of bays in the Region)	82.0	88.0	89.0	91.0	92.5	<b>442.50</b>					
14	AVOMLL(OML/LL)	0.40	0.41	0.56	0.65	0.65	2.668					
15	AVOMBN(OMS/BN)	9.25	8.79	12.09	13.97	14.10	58.194					
16	<b>NOMLL(allowable O&amp;M per unit of line length)</b>			<b>0.5335</b>	<b>0.5869</b>	<b>0.6456</b>		<b>0.6456</b>	<b>0.6843</b>	<b>0.7254</b>	<b>0.7689</b>	<b>0.8150</b>
17	<b>NOMBN(Allowable O&amp;M per bay)</b>			<b>11.6389</b>	<b>12.8028</b>	<b>14.0831</b>		<b>14.0831</b>	<b>14.9280</b>	<b>15.8237</b>	<b>16.7731</b>	<b>17.7795</b>
18	<b>NOMLL(as calculated by petitioner)</b>			<b>0.6000</b>				<b>0.7300</b>	<b>0.7700</b>	<b>0.8200</b>	<b>0.8700</b>	<b>0.9200</b>
19	<b>NOMBN(as calculated by petitioner)</b>			<b>13.0500</b>				<b>15.7900</b>	<b>16.7400</b>	<b>17.7400</b>	<b>18.8000</b>	<b>19.9300</b>

**NOTE:**

Security expenses on account of CISF deployment have been considered in accordance with the Notification. The petitioner may file petition for reimbursement of such abnormal expenses with justification after they are incurred.

Reason for difference in the normative values calculated by us and by the petitioner



37. The differences in NOMLL and NOMBAN as calculated by the petitioner and as allowed are mainly on account of certain expenses disallowed by us as explained in preceding paragraphs. Using these normative values, O&M charges have been calculated.

38. In our calculations the escalation factor of 6% per annum has been used. In accordance with the notification, if the escalation factor computed from the observed data lies in the range of 4.8% to 7.2%, this variation shall be absorbed by the petitioner. In case of deviation beyond this limit, adjustment shall be made on by applying actual escalation factor arrived at on the basis of weighted price index of CPI for industrial workers (CPI\_IW) and index of selected component of WPI (WPI\_TR).

39. The details of O&M expenses allowed are given hereunder:

2001-02			2002-03			2003-04		
Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)	Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)	Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)
1236	37	1482.02	1236	37	1570.94	1236	37	1665.20

#### RETURN ON EQUITY

40. In accordance with the notification, the petitioner is entitled to return on equity at the rate of 16% per annum. For the purpose of tariff equity of Rs. 5272.00 lakh being 50% of value of Net Fixed Assets as on 1.4.1997 has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 843.52 lakh each year during the tariff period.

## **INTEREST ON WORKING CAPITAL**

41. As provided in the notification, the interest on working capital shall cover:

- (a) Operation and maintenance expenses (cash) for one month;
- (b) Maintenance spares at a normative rate of 1% of the capital cost less 1/5<sup>th</sup> of the initial capitalised spares. Cost of maintenance spares for each subsequent year shall be revised at the rate applicable for revision of expenditure on O & M of the transmission system; and
- (c) Receivables equivalent to two months' average billing calculated on normative availability level, which is 98%.

42. In keeping with the above methodology, working capital has been worked out. The value of maintenance spares for 1997-98 has been taken as per Ministry of Power notification dated 14.05.1999 and the same has been escalated up to 2000-01 as per respective WPI/CPI and thereafter the same has been further escalated @ 6% per annum for the tariff period 2001-02 to 2003-04. The value of initial capitalised spares has been considered zero as done by Ministry of Power in the notification dated 14.05.1999. The petitioner has claimed interest on working capital at the rate of 11.5%, based on annual SBI PLR for the year 2001-2002, which has been allowed separately by the Commission in certain other petitions and, therefore, the same has been allowed here also despite the objection of some of the respondents. The detailed calculations in support of interest on Working Capital are as under:

### Interest on Working Capital

(Rs. In lakh)

<b>Working Capital</b>		<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Escalation for Maintenance Spares	6%			
Spares	166.36			
Less: 1/5 <sup>th</sup> of Initial Spares	0.00			
Maintenance Spares	166.36	176.34	186.92	198.14
O & M expenses		123.50	130.91	138.77
Receivables		491.33	468.34	484.73
Total		791.18	786.18	821.64
Rate of Interest		11.50%	11.50%	11.50%
<b>Interest</b>		<b>90.99</b>	<b>90.41</b>	<b>94.49</b>

### **TRANSMISSION CHARGES**

43. In the light of above discussion, we approve the transmission charges as given in the Table below:

**TABLE**

(Rs. in lakh)

<b>Transmission Tariff</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Interest on Loan	92.15	0.00	0.00
Interest on Working Capital	90.99	90.41	94.49
Depreciation	386.38	305.16	305.16
Advance against Depreciation	52.95	0.00	0.00
Return on Equity	843.52	843.52	843.52
O & M Expenses	1482.02	1570.94	1665.20
<b>Total</b>	<b>2948.00</b>	<b>2810.03</b>	<b>2908.37</b>

44. In addition to the transmission charges, the petitioner shall be entitled to other charges like Development Surcharge, income tax, incentive, surcharge and other cess and taxes in accordance with the notification subject to directions if any, of the superior courts. The petitioner shall also be entitled to recovery of filing fee of Rs 2 lakh, which shall be recovered from the respondents in five monthly installments of Rupees forty thousand each and shall be shared by the respondents in the same ratio as other transmission charges. This is subject to confirmation that the amount is not already included in the O&M charges.

45. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's notification dated 4.4.2001 as extended from time to time. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

46. The transmission charges approved by us shall be included in the regional transmission tariff for Eastern Region and shall be shared by the regional beneficiaries in accordance with the notification.

47. This order disposes of Petition No.11/2002.

**Sd/-**  
**(K.N. SINHA)**  
**MEMBER**

**Sd/-**  
**(G.S. RAJAMANI)**  
**MEMBER**

**Sd/-**  
**(ASHOK BASU)**  
**CHAIRMAN**

**New Delhi dated the 30<sup>th</sup> June 2003**