

**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.63/2002**

**In the matter of**

Petition for approval of tariff for Hathidah River Crossing Section of 220 kV Biharsharif – Begusarai Transmission Line 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 (Comm), PGCIL

**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 Hathidah River Crossing Section of 220 kV Biharsharif

– Begusarai Transmission Line 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 petitioner has built and commenced commercial operation of Hathidah River Crossing Section of 220kV Biharsharif – Begusarai Transmission Line in Eastern Region with effect from 1.3.2001. The investment approval for construction of Hathidah River Crossing Section of 220 kV Biharsharif – Begusarai Transmission Line was accorded by the Board of Directors of the petitioner company in its 71<sup>st</sup> meeting held on 9.3.1998 at an estimated cost of Rs. 1169 lakh. The project has been completed at a cost of Rs. 1066.80 lakh. The tariff for Hathidah River Crossing Section of 220 kV Biharsharif – Begusarai Transmission Line for the period from 1.3.2001 to 31.3.2001 was notified by the Commission vide its order dated 31.5.2002. in petition No 24/2001 at a completion cost of Rs. 1066.80 lakh.

3. Based on the above-noted facts, the petitioner has sought approval for transmission charges for the period from 1.4.2001 to 31.3.2004 as under:

(Rs. in lakh)			
<b>Transmission Tariff</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>
Interest on Loan	95.66	95.66	89.85
Interest on Working Capital	4.42	4.50	5.35
Depreciation	27.41	27.41	27.41
Advance against Depreciation	0.00	0.00	44.57
Return on Equity	32.45	32.45	32.45
O & M Expenses	4.26	4.52	4.78
<b>Total</b>	<b>164.20</b>	<b>164.54</b>	<b>204.41</b>

4. In addition, the petitioner has prayed for approval of other charges like Foreign Exchange Rate Variation, Income Tax, incentive, Development Surcharge, late payment surcharge, other statutory taxes, levies, cess, filing fee, etc in terms of the notification dated 26.3.2001.

#### **CAPITAL COST**

5. 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 assets was notified by the Commission vide its order dated 31.5.2002 by considering cost of Rs. 1066.80 lakh Therefore, for the purpose of present petition, the capital cost as considered by the Commission in its order dated 31.05.2002 has been adopted.

#### **EXTRA RUPEE LIABILITY**

6. As per the notification dated 26.3.2001, extra rupee liability towards interest payment and loan repayment actually incurred, in the relevant year shall be admissible; provided it directly arises out of foreign exchange rate variation and is not attributable to Utility or its suppliers or contractors. Every utility is mandated to follow the method as per the Accounting Standard-11 (Eleven) as issued by the Institute of Chartered Accountants of India to calculate the impact of exchange rate variation on loan repayment.

7. The petitioner has claimed the FERV with the following method and the amount of FERV so arrived at has been added to the capital cost as on 1.4.2001 (base capital cost for the tariff period) ∴

Outstanding loan as on 31.3.2001 (in foreign currency) X (exchange rate as on 31.3.2001 - exchange rate as on DOCO)

8. We approve of the methodology adopted by the petitioner. FERV amount derived by the above methodology has been added to the loan and equity as on 01.04.2001 in same ratio as was allowed in the tariff approved by the Commission in its order dated 31.5.2002. Thus, the following capital expenditure has been considered in the calculation :

	(Rs. in lakh)
Capital Expenditure up to 31.3.2001	1066.80
FERV up to 31.3.2001	(-) 0.24
Additional Capital Expenditure up to 31.3.2003	(+) 0.00
Total Capital Expenditure considered for tariff	1066.56

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

9. 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 81:19 as claimed earlier in petition No 24/2001. In the case in hand, the Commission has already allowed the actual debt and equity in the ratio of

81:19 employed by the petitioner for the purpose of tariff. Therefore, the actual debt-equity ratio has been considered for determination of tariff in the present petition.

### **INTEREST ON LOAN**

10. 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.

11. The petitioner has claimed interest on the basis of net outstanding loan as was admitted by the Commission in the petition of previous tariff setting. However the interest on foreign loan has been worked out in foreign currency and the same has been multiplied with exchange rate as on 31.03.2001. This amounts to working out the interest on foreign loan on revalued foreign loan at the exchange rate as on 31.03.2001. Interest on notional loan has been claimed on the basis of

- (i) division of FERV into notional loan & equity in the ratio of 50:50,
- (ii) depreciation on FERV as repayment during the year, and
- (iii) weighted average rate of interest of total outstanding loan as on 01.04.2001.

12. In the calculation, the interest on loan has been worked as detailed below:

- (i) The Gross amount of loan, repayment of loan up to 31.03.2001 and net outstanding loan as on 31.03.2001 as considered by the Commission in

its order dated 31.5.2002 for determination of annual transmission charges for the period up to 31.03.2001 has been considered. In case of foreign currency loan, the interest has been worked out in foreign currency and has been multiplied with exchange rate as on the date of commercial operation.

- (ii) The repayment for the year 2001-02 to 2003-04 and rate of interest etc. of the above loan has been worked out from the loan details submitted by the petitioner its affidavits filed before the Commission in the present proceedings.
- (iii) Notional loan arising out of FERV has been worked out as above.
- (iv) As the notional loan has arisen due to revaluation of the outstanding balance as on 31.03.2001 of Bank of India Foreign currency loan (BOI FC loan), repayment of the notional loan is worked out by assuming proportion of their repayments equal to proportion of their loan amount. The rate of interest of BOI FC loan is applied to the notional loan. The repayment for the year 2001-02 to 2003-04 of the above notional loan has been worked out as per the following formula or as per the actual repayment during the year as claimed by the petitioner, whichever is higher:

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

- (v) Rate of interest for the above notional loan has been taken same as the foreign loan from the loan details submitted by the petitioner.

13. The details of calculation of interest on loan are as given below:

### Calculation of Interest on Loan

(Rs. in Lakh)			
Details of Loan	2001-02	2002-03	2003-04
No. of days in the Year	365	365	366
<b>Bond -IX</b>			
Gross Loan -Opening	189.00	189.00	189.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	189.00	189.00	189.00
Repayment during the year	0.00	0.00	18.90
Net Loan-Closing	189.00	189.00	170.10
Rate of Interest	12.25%	12.25%	12.25%
Interest	23.15	23.15	21.74
Repayment Schedule	22.08.2003		
<b>ICICI</b>			
Gross Loan -Opening	144.00	144.00	144.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	144.00	144.00	144.00
Repayment during the year	0.00	0.00	14.40
Net Loan-Closing	144.00	144.00	129.60
Rate of Interest	12.15%	12.15%	12.15%
Interest	17.50	17.50	16.17
Repayment Schedule	29.06.2003		
<b>Bonds-VII</b>			
Gross Loan -Opening	105.00	105.00	105.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	105.00	105.00	105.00
Repayment during the year	0.00	0.00	21.00
Net Loan-Closing	105.00	105.00	84.00
Rate of Interest	13.64%	13.64%	13.64%
Interest	14.32	14.32	12.44
Repayment Schedule	04.08.2003		
<b>Corporation Bank</b>			
Gross Loan -Opening	53.00	53.00	53.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	53.00	53.00	53.00
Repayment during the year	0.00	0.00	2.65
Net Loan-Closing	53.00	53.00	50.35
Rate of Interest	12.25%	12.25%	12.25%
Interest	6.49	6.49	6.47
Repayment Schedule	10.03.2004		
<b>PNB</b>			
Gross Loan -Opening	105.00	105.00	105.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	105.00	105.00	105.00
Repayment during the year	0.00	0.00	10.50

Net Loan-Closing	105.00	105.00	94.50
Rate of Interest	12.01%	12.01%	12.01%
Interest	12.61	12.61	12.60
Repayment Schedule	30.03.2004		
<b>SBI-II</b>			
Gross Loan -Opening	82.00	82.00	82.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	82.00	82.00	82.00
Repayment during the year	0.00	0.00	13.67
Net Loan-Closing	82.00	82.00	68.33
Rate of Interest - SBI-I	12.07%	12.07%	12.07%
Interest	9.90	9.90	8.67
Repayment Schedule	03.07.2003		
<b>BOI Foreign Currency Loan</b>			
Gross Loan -Opening	184.00	184.00	184.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	184.00	184.00	184.00
Repayment during the year- 10th June	0.00	0.00	0.00
	184.00	184.00	184.00
Repayment during the year- 10th December	0.00	0.00	0.00
Net Loan-Closing	184.00	184.00	184.00
Rate of Interest	6.31%	6.31%	6.31%
Interest	11.61	11.61	11.61
Repayment Schedule	No repayment till 31.03.2004		
<b>Notional Loan</b>			
Gross Loan -Opening	-0.19	-0.19	-0.19
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	-0.19	-0.19	-0.19
Repayment during the year- 1 <sup>st</sup> June	0.00	0.00	0.00
	-0.19	-0.19	-0.19
Repayment during the year- 1 <sup>st</sup> December	0.00	0.00	0.00
Net Loan-Closing	-0.19	-0.19	-0.19
Rate of Interest	6.31%	6.31%	6.31%
Interest	-0.04	-0.04	-0.04
Repayment Schedule	No repayment till 31.03.2004		
<b>Total Loan</b>			
Gross Loan -Opening	861.81	861.81	861.81
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	861.81	861.81	861.81
Repayment during the year	0.00	0.00	81.12
Net Loan-Closing	861.81	861.81	780.69
<b>Interest</b>	<b>95.54</b>	<b>95.54</b>	<b>89.67</b>



14. It is noted that the floating rate of interest of Bank of India Foreign Currency loan is linked to LIBOR. The petitioner has submitted different rates of LIBOR as on 01.04.2001 for different loans as below:

Loan	LIBOR as on 01.04.2001
ING Bank	0.1475%
SUMITOMO	0.1875%
Industrial Bank of Japan-II (Tranche-D)	0.1475%
Bank of India- Cayman Island(BOI FC Loan)	4.71%

However, in the calculations rate of interest of 4.71% has been taken.

15. Bank of India Foreign Currency loan carries floating rate of interest. The interest rate as submitted by the petitioner to be prevailing as on 01.04.2001 has been taken in the calculation. In view of the above, any changes/resetting of the interest rate of the above loan during the tariff period covered in this petition would be settled mutually between the parties and in case of their inability to do so, any one of them may approach the Commission.

### **DEPRECIATION**

16. 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 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.

17. The petitioner has claimed the depreciation on the capital expenditure in accordance with the above principles. In the calculation, depreciation has been worked out on the capital cost as per para 2 above and the rates as prescribed in the notification dated 26.03.2001. For working out cumulative depreciation the depreciation as per last tariff setting has been considered.

18. Based on the above, depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 1066.56 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 2.57% 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 capital cost has been considered as per the details furnished by the petitioner. The calculations in support of weighted average rate of depreciation of 2.57% are appended hereinbelow:

(Rs. in lakh)						
	Commission's Order dated 31.05.2002 in Petition no. 24/2001	FERV up to 31.03.2001	Total Cost including FERV	Approved capital cost	Rate of Depreciation	Depreciation
<b>Capital Expenditures as on 31.03.2001</b>						
Land	0.00	0.00	0.00		0%	0.00
Building & Other Civil Works	0.00	0.00	0.00		1.80%	0.00
Sub-Station Equipment	0.00	0.00	0.00		3.60%	0.00
Transmission Line	1066.80	-0.24	1066.56		2.57%	27.41
PLCC	0.00	0.00	0.00		6.00%	0.00
<b>Total</b>	<b>1066.80</b>	<b>-0.24</b>	<b>1066.56</b>	<b>1169.00</b>		<b>27.41</b>

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

(Rs. in lakh)				
		2001-02	2002-03	2003-04
Rate of Depreciation	2.57%			
Depreciable Value	959.91			
Balance Useful life of the asset				
Remaining Depreciable Value		955.22	927.81	900.40
<b>Depreciation</b>		<b>27.41</b>	<b>27.41</b>	<b>27.41</b>

## **ADVANCE AGAINST DEPRECIATION**

20. 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  $1/12^{\text{th}}$  of original loan amount minus depreciation as per schedule.

21. The petitioner has claimed Advance Against Depreciation on the basis of
- (i)  $1/12^{\text{th}}$  of gross loan worked out as per the gross block admitted by the Commission in the petition for previous tariff setting,
  - (ii) Repayment of loans during the year and in case of foreign currency loan multiplying the repayment with exchange rate as on 31.3.2001 and depreciation on FERV as repayment during the year in the case of notional loan, and
  - (iii) depreciation as claimed in the petition.

22. The entitlement of the petitioner has been considered in accordance with the notification dated 26.3.2001. 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)	71.82	71.82	71.82
Scheduled Repayment of the Loan(s)	0.00	0.00	81.12
Minimum of the above	0.00	0.00	71.82
Depreciation during the year	27.41	27.41	27.41
<b>Advance Against Depreciation</b>	<b>0.00</b>	<b>0.00</b>	<b>44.41</b>

### **OPERATION & MAINTENANCE EXPENSES**

23. 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.

24. The different elements of Operation & Maintenance expenses have been considered in the succeeding paragraphs in the light of provisions of the notification dated 26.3.2001 based on the data available since 1995-96.

### **Employee Cost**

25. 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.

26. 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**

27. WBSEB has stated that the petitioner has not furnished sufficient explanation for about 81% increase in 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**

28. 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**

29. 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.

30. 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.

31. 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.

32. 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**

33. 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, 1898-99 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**

34. 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**

35. 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.

36. 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>Items</b>	<b>1995-96</b>		<b>1996-97</b>		<b>1997-98</b>		<b>1998-99</b>		<b>1999-2000</b>	
	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	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**

37. 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.

38. 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.

39. 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

40. 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.

41. 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).

42. 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)
5.2	0	3.77	5.2	0	4.00	5.2	0	4.24

**RETURN ON EQUITY**

43. 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. 204.75 lakh being equity considered in the order dated 31.5.2002, has been considered. On the above

basis, the petitioner shall be entitled to return on equity of Rs. 32.76 lakh each year during the tariff period.

#### **INTEREST ON WORKING CAPITAL**

44. 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  $1/5^{\text{th}}$  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%.

45. In keeping with the above methodology, working capital has been worked out. The value of maintenance spares has been taken as per the Commission's order dated 31.05.2002 and the same has been escalated up to 31.3.2001 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. 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)

		2001-02	2002-03	2003-04
Escalation for Maintenance Spares	6%			
Period in 2000-01	0.08			
On Capital Expenditures up to 31.03.2000	0.00			
On Capital Expenditures during the year 2000-01	10.67			
Maintenance Spares	10.67			
Less: 1/5 th of Initial Spares	0.00			
Maintenance Spares	10.67	10.68	11.32	11.99
O & M expenses		0.32	0.34	0.36
Receivables		27.32	27.37	33.98
Total		38.32	39.03	46.33
Rate of Interest		11.50%	11.50%	11.50%
Interest		4.41	4.49	5.33

### TRANSMISSION CHARGES

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

**TABLE**

(Rs. in lakh)

Transmission Tariff	2001-02	2002-03	2003-04
Interest on Loan	95.54	95.54	89.67
Interest on Working Capital	4.41	4.49	5.33
Depreciation	27.41	27.41	27.41
Advance against Depreciation	0.00	0.00	44.41
Return on Equity	32.76	32.76	32.76
O & M Expenses	3.77	4.00	4.24
<b>Total</b>	<b>163.89</b>	<b>164.20</b>	<b>203.81</b>

47. 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 dated 26.3.2001 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.

48. 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.

49. 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 dated 26.3.2001.

50. This order disposes of Petition No.63/2002.

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

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

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

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