

**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.49/2002**

**In the matter of**

Petition for approval of tariff for Korba-Budhipadar Transmission System in Western Region for the period 1.4.2001 to 31.3.2004.

**And in the matter of**

Power Grid Corporation of India Ltd.  
Vs

**.... Petitioner**

1. Madhya Pradesh State Electricity Board, Jabalpur
2. Maharashtra State Electricity Board, Mumbai
3. Gujarat Electricity Board, Vadodara
4. Electricity Department, Govt of Goa, Panaji, Goa
5. Electricity Department, Admn. of Dadra and Nagar Haveli, Silvassa
6. Electricity Department, Admn. Of Daman & Diu, Daman
7. Chhattisgarh State Electricity Board, Raipur
8. Bihar State Electricity Board, Patna
9. West Bengal State Electricity Board, Calcutta
10. Grid Corporation of Orissa Ltd., Bhubaneshwar
11. Damodar Valley Corporation, Calcutta
12. Power Deptt., Govt. of Sikkim, Gangtok
13. Jharkhand State Electricity Board, Ranchi

**.....Respondents**

**The following were present:**

1. Shri S. S. Sharma, AGM, PGCIL
2. Shri Prashant Sharma, PGCIL
3. Shri U.K. Tyagi, Chief Manager, PGCIL
4. Shri A.K. Nagpal, PGCIL
5. Shri Pawan Singh, PGCIL
6. Shri C. Kannan, PGCIL
7. Shri Sanjay Mehrotra, PGCIL
8. Shri R.P. Ojha, PGCIL
9. Shri D. Khandelwal, SE (Comm), MPSEB
10. Shri Deepak Shrivastava, EE, MPSEB

**ORDER**  
**(DATE OF HEARING: 18.3.2003)**

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff in respect of the Korba-Budhipadar Transmission System (hereinafter referred to as “the Transmission System”), in Western 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. In-principle approval for implementation of 220 kV S/C Korba-Budhipadar transmission system, to transmit surplus power from Eastern Region to Western Region was accorded by the Central Electricity Authority vide its letter dated 24.7.1997. The Board of Directors of the petitioner company in its 67<sup>th</sup> meeting held on 17.9.1997 accorded the investment approval for the Transmission System for Rs.3064 lakh, including IDC of Rs.84 lakh. The approval for revised cost estimate of Rs.3553 lakh was subsequently accorded by the Board of Directors in its 101<sup>st</sup> meeting held on 22.2.2000. The Transmission System covered the following assets:

- a) Korba-Budhipadar 220 kV S/C line
- b) Extension of 220 kV existing sub-station at Budhipadar
- c) Extension of 220/132 kV of the existing sub-station at Korba

3. The transmission system along with associated bays was declared under commercial operation with effect from 1.9.1999 at a completion cost of Rs.3001.94 lakh. The tariff for the Transmission System was notified by the Commission vide its

order dated 19.6.2002 in petition No 9/2000, at the completion cost as stated in the petition No 9/2000. The petitioner in the present petition 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	285.81	285.77	265.76
Interest on Working Capital	15.58	15.94	18.15
Depreciation	81.63	81.63	81.63
Advance against Depreciation	0.00	0.00	113.82
Return on Equity	106.73	106.73	106.73
O & M Expenses	83.59	88.09	92.64
<b>Total</b>	<b>573.34</b>	<b>578.16</b>	<b>678.73</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 Transmission System was notified by the Commission vide its order dated 19.6.2002 in petition No 9/2000 by considering cost of Rs. 3001.94 lakh. Therefore, for the purpose of present petition, the capital cost as considered by the Commission vide its order dated 19.6.2002 has been adopted.

## **ADDITIONAL CAPITALISATION**

6. The notification dated 26.3.2001 provides that tariff revisions during the tariff period on account of capital expenditure within the approved project cost incurred during the tariff period may be entertained by the Commission only if such expenditure exceeds 20% of the approved cost. In all cases, where such expenditure is less than 20%, tariff revision shall be considered in the next tariff period.

7. The petitioner has not claimed any additional capital expenditure for the period after 01.04.2001 in the petition. Accordingly, the additional capitalisation has not been considered.

## **EXTRA RUPEE LIABILITY**

8. The notification dated 26.3.2001 provides that:

- (a) 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 shall 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.
- (b) Any foreign exchange rate variation to the extent of the dividend paid out on the permissible equity contributed in foreign currency, subject to the ceiling of permissible return shall be admissible. This as and when paid, may be spread over the twelve-month period in arrears.

9. The petitioner has claimed FERV with the following method:

Outstanding loan as on 31.3.2001 (in foreign currency) X (exchange rate as on 31.3.2001 - exchange rate as on date of commercial operation/1.4.92)

10. The amount of FERV arrived at in the above manner is added in the capital cost as on 1.4.2001 (base capital cost for the tariff period) and depreciation is worked out on the above capital cost. For the claim of Advance Against Depreciation, 1/12th of gross loan and repayment of foreign loan is worked out by the petitioner by multiplying the foreign currency with exchange rate as on 31.03.2001. In addition, the petitioner has claimed FERV based on the outstanding loan as on 31.3.2001 in foreign currency and multiplying the same with difference in exchange rate as on 31.3.2001 and as on the date of commercial operation. This results into double claim of FERV.

11. We have considered the matter. On consideration of the fact that the method up to 31.03.2001 to allow the FERV was on repayment of loan and payment of interest on actual basis, we have decided that FERV to be capitalised for adding in the Gross Block as on 01.04.2001 would be arrived in the following manner:

Foreign Loan outstanding as on 31.03.2001 x (Exchange Rate as on 31.03.2001 - Exchange Rate as on DOCO/01.04.1992 as given in the petition).

12. FERV amount calculated in the above manner is as shown below:

<b>IBRD Loan</b>	
Outstanding balance as on 31.03.2001 (USD in lakh)	3.43
Exchange Rate as on 31.03.2001	46.88
Exchange Rate as on the date of commercial operation	43.78
FERV on the outstanding loan as on 31.03.2001 ( Rs. in lakh)	10.63

13. The above FERV amount has been added to the loan and equity as on 01.04.2001 in the ratio of in which the last tariff was approved by the Commission. After taking into account FERV amount, the capital expenditure considered in the calculations for tariff is under:

	(Rs. in lakh)
Capital Expenditure up to 31.03.2001 as per previous tariff setting	3001.94
FERV up to 31.03.2001	10.63
Capital Expenditure up to 31.03.2001	3012.57
Additional Capital Expenditure after 31.03.2001	0.00
<b>Capital Expenditure considered for determination of Tariff</b>	<b>3012.57</b>

14. The approval of FERV is subject to the condition that the petitioner shall furnish a certificate within four weeks of this order that there has been no drawl of the foreign loan after the date of commercial operation of the respective transmission element claimed in the petition. If petitioner fails to submit the certificate within stipulated time, no amount on account of FERV would be allowed as pass through in tariff of concerned line.

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

15. 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 Commission while notifying tariff vide order dated 19.6.2002 had considered the actual debt and equity, which were in the ratio of 77.95:22.05. Therefore, the same debt-equity ratio has been considered for determination of tariff in the present petition. FERV amount allowed has been added to debt and equity in this ratio.

### **INTEREST ON LOAN**

16. 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. The petitioner has claimed interest on foreign loan by calculating the same in foreign currency and multiplying with exchange rate as on 31.03.2001. This would amount to working out the interest on foreign loan on revalued foreign loan at the exchange rate as on 31.03.2001 and results into double claim.

17. In keeping with the provisions of the notification dated 26.3.2001, 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:

Actual repayment during the year x normative net loan at the beginning of the year/ actual net loan at the beginning of the year.

18. Based on the above methodology, there are no repayments of loan during 2001-2002 and 2002-2003. The repayment of loan during 2002-03 is Rs. 303.73 lakh and as such repayment during 2003-04 needs to be considered.

19. On the basis of actual rate of interest on actual average loans based on information available in the petition and the loan allocation details, the weighted rate of interest on loan has been worked out and the same has been applied on the normative average loan during the year to arrive at the interest on loan. The details of calculation of interest on loan is given below:

#### Calculation of Interest

(Rs. in Lakh)			
Details of Loan	2001-02	2002-03	2003-04
No. of days in the Year	365	365	366
<b>Bonds VII</b>			
Gross Loan -Opening	669.00	669.00	669.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	669.00	669.00	669.00
Repayment during the year	0.00	0.00	133.80
Net Loan-Closing	669.00	669.00	535.20
Rate of Interest	13.64%	13.64%	13.64%
Interest	91.25	91.25	79.23
Repayment Schedule	5 Annual Installments from 04.08.2003		



<b>Corp. Bank</b>			
Gross Loan -Opening	334.00	334.00	334.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	334.00	334.00	334.00
Repayment during the year	0.00	0.00	16.70
Net Loan-Closing	334.00	334.00	317.30
Rate of Interest	12.25%	12.25%	12.25%
Interest	40.92	40.92	40.79
Repayment Schedule	20 Half yearly Installments from 10.03.2004		
<b>PNB Loan</b>			
Gross Loan -Opening	669.00	669.00	669.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	669.00	669.00	669.00
Repayment during the year	0.00	0.00	66.90
Net Loan-Closing	669.00	669.00	602.10
Rate of Interest	12.01%	12.01%	12.01%
Interest	80.35	80.35	80.30
Repayment Schedule	10 Annual Installments from 30.03.2004		
<b>SBI Loan-II</b>			
Gross Loan -Opening	518.00	518.00	518.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	518.00	518.00	518.00
Repayment during the year	0.00	0.00	86.33
Net Loan-Closing	518.00	518.00	431.67
Rate of Interest	12.07%	12.07%	12.07%
Interest	62.52	62.52	54.75
Repayment Schedule	6 Annual Installments from 3.7.2003		
<b>BOI Loan (Foreign Currency Loan)</b>			
Gross Loan -Opening	150.00	150.00	150.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	150.00	150.00	150.00
Repayment during the year- 10 <sup>th</sup> June	0.00	0.00	0.00
	150.00	150.00	150.00
Repayment during the year- 10 <sup>th</sup> December	0.00	0.00	0.00
Net Loan-Closing	150.00	150.00	150.00

Rate of Interest	6.31%	6.31%	6.31%
Interest	9.47	9.47	9.47
Repayment Schedule	Equal Half yearly from 10.06.2004		
<b>Notional Loan-BOI Loan (Foreign Currency Loan)</b>			
Gross Loan -Opening	8.29	8.29	8.29
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	8.29	8.29	8.29
Repayment during the year- 1 <sup>st</sup> June	0.00	0.00	0.00
	8.29	8.29	8.29
Repayment during the year- 1 <sup>st</sup> December	0.00	0.00	0.00
Net Loan-Closing	8.29	8.29	8.29
Rate of Interest	6.31%	6.31%	6.31%
Interest	0.52	0.52	0.52
Repayment Schedule	Same as of BOI (Foreign Currency Loan)		
<b>Total Loan</b>			
Gross Loan -Opening	2348.29	2348.29	2348.29
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	2348.29	2348.29	2348.29
Repayment during the year	0.00	0.00	303.73
Net Loan-Closing	2348.29	2348.29	2044.56
<b>Interest</b>	<b>285.02</b>	<b>285.02</b>	<b>265.07</b>

20. The essential features in regard to calculation of interest on loan are discussed hereinbelow:

- (i) 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 in proportion to repayment of BOI FC loan and ratio of the notional loan to BOI FC loan and rate of interest of BOI FC loan is applied to the notional loan.
- (ii) Corporation Bank, PNB, SBI-II and BOI FC loan carries floating rate of interest and the interest rate as submitted by the petitioner stated to be prevailing as on

01.04.2001 has been considered 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 require settlement of the same mutually between the parties. In case the parties are unable to resolve the issue, any one of them is at liberty to approach the Commission for appropriate decision.

- (iii) It is noted that the floating rate of interest of BOI FC is linked to LIBOR. PGCIL in the above affidavit 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%

From the details furnished with the petition, rate of interest of 4.71% appears to be applicable on 31.03.2001. Therefore, in the calculation above rate of interest of 4.71% has been taken into consideration.

### **DEPRECIATION**

21. 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.

22. The petitioner has claimed the depreciation on the capital expenditure in accordance with above principles. In the calculation, the depreciation has been worked out on the capital cost of Rs.3012.57 lakh 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.

23. Based on the above, the depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 3012.57 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 2.71% has been worked out. For working out cumulative depreciation, the depreciation as per the Commission's order dated 19.6.2002 has been taken into consideration. The calculations in support of weighted average rate of depreciation of 2.89% are appended hereinbelow:

(Rs. in lakh)						
	Commission's Order dated 19.06.2002	FERV as on 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	262.44	0.93	263.37		3.60%	9.48
Transmission Line	2696.01	9.55	2705.56		2.57%	69.53
PLCC	43.49	0.15	43.64		6.00%	2.62
<b>Total</b>	<b>3001.94</b>	<b>10.63</b>	<b>3012.57</b>	<b>3553.00</b>		<b>81.63</b>

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

(Rs. in lakh)				
		2001-02	2002-03	2003-04
Rate of Depreciation	2.71%			
Depreciable Value	2711.32			
Remaining Depreciable Value		2445.15	2363.52	2281.89
<b>Depreciation</b>		<b>81.63</b>	<b>81.63</b>	<b>81.63</b>

### **ADVANCE AGAINST DEPRECIATION**

25. 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 dated 26.3.2001. 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.

26. The petitioner has claimed Advance Against Depreciation on the basis of

- (i)  $1/12^{\text{th}}$  of gross loan worked out from Gross Loan as claimed in the previous petition and multiplying the outstanding loan as on 31.3.2001 in foreign currency with exchange rate as on 31.3.2001 and division of FERV into notional loan into debt and equity in the ratio of 50:50,
- (ii) repayment of actual loans (excluding notional loan arising out of FERV claimed above) during the year, and in case of foreign currency loan multiplying the repayment with exchange rate as on 31.3.2001, and
- (iii) depreciation as claimed in the petition.

27. Madhya Pradesh State Electricity Board in its reply has objected to the Advance Against Depreciation in the year 2003-04 on the ground that the petitioner is having

surplus depreciation as no loan repayment has been made up to 31.03.2001 and also in the year 2001-02 and 2002-03.

28. 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 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)	195.69	195.69	195.69
Scheduled Repayment of the Loan(s)	0.00	0.00	303.73
Minimum of the above	0.00	0.00	195.69
Depreciation during the year	81.63	81.63	81.63
<b>Advance Against Depreciation</b>	<b>0.00</b>	<b>0.00</b>	<b>114.06</b>

29. Korba-Budhipadar transmission line is an inter-regional line between Eastern and Western Regions. The petitioner has claimed O&M expenses applicable to Western Region for the transmission line. Accordingly, O&M expenses as worked out for Western Region has been considered.

### **OPERATION & MAINTENANCE EXPENSES**

30. In accordance with the notification dated 26.3.2001, 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.

31. 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**

32. 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.

33. 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. 19.98 lakh and Rs 37.32 lakh were paid for Western 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. 115.14 lakh and Rs. 86.86 lakh for Western Region and Rs. 297.13 lakh & 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**

34. The petitioner has submitted that the increase of 160.84 % in Repair & Maintenance expenses in 1997-98 (Rs 451.01 lakh) over the previous year (Rs 172.91 lakh) is due to overhauling of circuit breaker at Bhilai and pile foundation works at Kawas and Kakrapar transmission system. 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 1997-98 have been limited to Rs 207.49 lakhs (20% over and above the repair and maintenance expenses for the year 1996-97) for the purpose of normalisation. In the next year, that is, 1998-99, the petitioner has claimed even higher Repair and Maintenance expenses (Rs 539.84 lakhs) than in 1997-98. Thus, the repair and maintenance expenses in 1998-99 are also substantially high. Hence, in this year also the increase has been limited to Rs 248.99 lakhs (20% over the expenses considered for normalisation in the previous year, 1997-98) for the purpose of normalisation. The abnormal increase of repair and maintenance expenses during 1997-98 and 1998-99 is evident from the O&M expenses of Rs. 304.10 lakh for the subsequent year, 1999-2000. 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**

35. 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 Western Regional Transmission System (WRTS) the petitioner was asked to submit break up of power charges between substation facilities and residential colonies. The petitioner vide affidavit dated 12<sup>th</sup> February 2003 has submitted the break up. Since, power charges for residential quarters in the colony should be recovered from the employees, such charges amounting to Rs 32.42 lakh, Rs 52.04 lakh, Rs 69.46 lakh, Rs 83.28 lakh and Rs 84.6 lakh for the five years from 1995-96 to 1999-2000 have been deducted from the total power charges claimed by the petitioner.

## **Insurance**

36. 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.

37. 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.

38. 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.

39. 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**

40. In case of WRTS, following items claimed under 'provision' have not been considered admissible:

- (a) Amount of Rs 15.27 lakh claimed by the petitioner in 1995-96 for loss of stores, amount of Rs 9.06 lakh and Rs 49 lakh in 1995-96 and 1996-97 on account of writing off of advance pending since 1998-99. Since, these items are controllable by the petitioner and reflect the managerial efficiency of the petitioner, the provisions made on this account have not been considered as admissible for reimbursement.
- (b) Amount of Rs 0.11 lakh, Rs. 0.96 lakh and Rs 0.14 lakh as 'others' for the years 1997-98, 1998-99 and 1999-2000. In spite of the direction by the Commission to furnish the items covered in the provisions, the petitioner has lumped some provisions under the head 'others'. In the absence of details, this amount has not been considered admissible.
- (c) Amount of Rs. 100.82 lakh for restoration of Gujarat Electricity Board lines after cyclone claimed in 1999-2000. During the hearing, the petitioner explained that the job was undertaken at the instance of Ministry of Power who had since directed that the amount be recovered from the beneficiaries through O&M charges. The Commission vide its order dated 21.03.2003 had directed that the entire correspondence exchanged with Ministry of Power on the subject may be placed on record. However, the petitioner vide affidavit dated 03.04.2003 has reiterated earlier statement but has not provided any correspondence in this regard to substantiate its claim. During the hearing, Madhya Pradesh State Electricity Board had stated that this amount should be recovered from Gujarat Electricity Board. The petitioner has also stated that attempts were made to recover this amount from Gujarat Electricity Board but have not yielded the result and hence the petitioner had no

option but to include it in O&M expenses. The efforts made by petitioner in the national crisis, though commendable, the expenditure on that account cannot be charged to other beneficiaries. Hence, this amount has not been considered as admissible for the purpose of normalisation.

41. The petitioner has claimed amount of Rs. 188.12 lakhs on account of writing off of TOD meters. The Commission vide its order dated 21.03.2003 had directed the petitioner to confirm that this amount figured in the profit & loss account. The petitioner, vide affidavit dated 03.04.2003 has confirmed the same. Since these meters have become obsolete due to technological changes and also have lost relevance after installation of Special Energy Meters, this amount has been admitted.

42. 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 Western Region and North Western Region, for bad and doubtful debt in Northern Region and for shortage of store in North Western Region. The petitioner has also stated that provision of

loss of store in Western 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**

43. 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 WRTS. 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 WRTS 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**

44. 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.

45. 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  
WESTERN REGION**

(Rs. in lakh)

Items	1995-96		1996-97		1997-98		1998-99		1999-2000	
	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	382.32	320.51	462.49	389.89	746.85	749.88	902.00	918.19	1398.13	1241.98
Repair & Maintenance	136.86	136.86	172.91	172.91	451.01	207.49	539.84	248.99	304.10	304.10
Power Charges	121.80	89.38	181.78	129.76	264.59	195.13	453.50	370.22	510.49	425.89
Training & Recruitment	7.88	7.88	9.54	9.54	11.57	11.57	13.29	13.29	11.57	11.57
Communications	36.05	36.05	45.36	45.36	63.54	63.54	70.98	70.98	57.23	57.23
Travelling	94.16	94.16	106.05	106.05	167.95	167.95	209.26	209.26	225.31	225.31
Printing & Stationery	6.18	6.18	7.93	7.93	11.60	11.60	14.93	14.93	16.30	16.30
Rent	3.71	3.71	3.61	3.61	4.05	4.05	3.88	3.88	6.63	6.63
Miscellaneous	96.08	96.08	110.20	110.20	156.49	156.49	236.05	229.69	243.63	243.63

Expenses										
Insurance	5.25	5.25	7.67	7.67	187.71	187.71	246.86	246.86	291.47	291.47
Others	91.55	67.22	84.45	35.45	77.16	77.05	68.45	67.49	341.11	240.15
Corporate Expenses Allocation	261.52	255.98	188.96	93.00	470.19	405.58	764.75	763.07	1075.12	869.41
<b>TOTAL</b>	<b>1243.36</b>	<b>1119.26</b>	<b>1380.95</b>	<b>1111.37</b>	<b>2612.71</b>	<b>2238.05</b>	<b>3523.79</b>	<b>3156.86</b>	<b>4481.09</b>	<b>3933.67</b>
Less : Recoveries		2.32		4.13		7.93		20.10		28.23
<b>Net O&amp;M Expenses</b>	<b>1243.36</b>	<b>1116.94</b>	<b>1380.95</b>	<b>1107.24</b>	<b>2612.71</b>	<b>2230.12</b>	<b>3523.79</b>	<b>3136.76</b>	<b>4481.09</b>	<b>3905.44</b>

### Method of Normalizing O&M Expenses

46. The following formulae for calculation of normative O&M expenses as per the notification dated 26.3.2001, 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.

47. 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 WESTERN REGION

(Rs. in Lakh)

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)	1116.94	1107.24	2230.12	3136.76	3905.44						
2	Abnormal O&M expenses	0.00	0.00	0.00	0.00	0.00	0.00					
3	Normal O&M expenses (S.No. 1 -S.NO. 2)	1116.94	1107.24	2230.12	3136.76	3905.44						
4	<b>OML</b> (O&M for lines)= 0.7 X S. NO.3	781.86	775.07	1561.08	2195.73	2733.81	<b>8047.55</b>					
5	<b>OMS</b> (O&M for substation) = 0.3XS.NO.3	335.08	332.17	669.03	941.03	1171.63	<b>3448.94</b>					
6	Line length at beginning of the year in Kms.	4520.00	5322.00	5322.00	7668.00	7681.00						
7	Line length added in the year in Kms.	802.00	0.00	2346.00	13.00	1487.00						
8	Line length at end of the year in Kms.	5322.00	5322.00	7668.00	7681.00	9168.00						
9	LL (Average line length in the Region)	4921.00	5322.00	6495.00	7674.50	8424.50	<b>32837.00</b>					
10	NO. of bays at beginning of the year	53	53	54	101	102						
11	NO. of bays added in the year	0	1	47	1	15						
12	NO. of bays at the end of the year	53	54	101	102	117						
13	BN (Average number of bays in the Region)	53.0	53.5	77.5	101.5	109.5	<b>395.00</b>					
14	AVOMLL(OML/LL)	0.16	0.15	0.24	0.29	0.32	1.155					
15	AVOMBN(OMS/BN)	6.32	6.21	8.63	9.27	10.70	41.135					
16	<b>NOMLL(allowable O&amp;M per unit of line length)</b>			<b>0.2311</b>	<b>0.2542</b>	<b>0.2796</b>		<b>0.2796</b>	<b>0.2964</b>	<b>0.3142</b>	<b>0.3330</b>	<b>0.3530</b>
17	<b>NOMBN(Allowable O&amp;M per bay)</b>			<b>8.2269</b>	<b>9.0496</b>	<b>9.9546</b>		<b>9.9546</b>	<b>10.5519</b>	<b>11.1850</b>	<b>11.8561</b>	<b>12.5675</b>
18	<b>NOMLL(as calculated by petitioner)</b>			<b>0.28</b>				<b>0.34</b>	<b>0.36</b>	<b>0.38</b>	<b>0.40</b>	<b>0.41</b>
19	<b>NOMBN(as calculated by petitioner)</b>			<b>10.06</b>				<b>12.17</b>	<b>12.90</b>	<b>13.67</b>	<b>14.49</b>	<b>15.36</b>

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

O&M cost per km.: 85% of the difference is due to deductions of non-prudent expenses, 9% is due to error in formula and 6% is due to round-off errors in the petitioner's calculation.

O&M cost per bay: 85% of the difference is due to deductions of non-prudent expenses and 15% is due to error in formula.

48. 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.

49. In our calculations the escalation factor of 6% per annum has been used. In accordance with the notification dated 26.3.2001, 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).

50. 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)
184	1	68.996	184	1	73.135	184	1	77.524

### **RETURN ON EQUITY**

51. In accordance with the notification dated 26.3.2001, the petitioner is entitled to return on equity at the rate of 16% per annum. For the purpose of tariff equity of Rs. 664.28 lakh has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 106.29 lakh each year during the tariff period.

### **INTEREST ON WORKING CAPITAL**

52. As provided in the notification dated 26.3.2001, 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%.

53. In keeping with the methodology prescribed in the notification dated 26.3.2001, working capital has been worked out. In the calculation, maintenance spares for the year 2001-02 to 2003-04 have been worked out on the basis of capital expenditure up to 31.03.2001 allowed by the Commission earlier, and after deduction of  $1/5^{\text{th}}$  of the initial capitalised spares therefrom. This 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 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%			
Period in 2000-01	1.00			
On Capital Expenditures up to 31.03.2000	31.07			
On Capital Expenditures during the year 2000-01	0.00			
Maintenance Spares	31.07			
Less: 1/5 <sup>th</sup> of Initial Spares	0.00			
Maintenance Spares	31.07	32.93	34.91	37.00
O & M expenses		5.75	6.09	6.46
Receivables		92.84	93.59	110.38
Total		131.53	134.60	153.84
Rate of Interest		11.50%	11.50%	11.50%
Interest		<b>15.13</b>	<b>15.48</b>	<b>17.69</b>

### **TRANSMISSION CHARGES**

54. 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	285.02	285.02	265.07
Interest on Working Capital	15.13	15.48	17.69
Depreciation	81.63	81.63	81.63



Advance against Depreciation	0.00	0.00	114.06
Return on Equity	106.29	106.29	106.29
O & M Expenses	69.00	73.14	77.52
<b>Total</b>	<b>557.06</b>	<b>561.55</b>	<b>662.26</b>

55. 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. This is subject to confirmation that the amount is not already included in the O&M charges.

56. 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.

57. The transmission charges approved by us shall be included in the regional transmission tariff for Western Region and Eastern Region and shall be shared by the regional constituents in accordance with the notification dated 26.3.2001 read with the Commission's order dated 4.4.2003 in review petition No.117/2002.

58. This order disposes of Petition No.49/2002.

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

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

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

**New Delhi dated the 18<sup>th</sup> July 2003**