

**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. 47/2002

In the matter of

Petition for approval of tariff for 400 kV Vindhyachal Stage-I 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. Chhattisgarh State Electricity Board, Raipur
7. Electricity Department, Admn. Of Daman & Diu, Daman**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 400 kV Vindhyachal Stage-I 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. The Transmission System for evacuation of power from Vindhyachal Super Thermal Power Station Stage I in Western Region was approved by Central Government in Ministry of Power as a part of the project . The Transmission System was initially implemented by National Thermal Power Corporation Ltd, but it was subsequently transferred to the petitioner. The scope of work included in Transmission System in the approval granted by Central Government and the date of commercial operation of the respective line are as stated below:

S. No.	Name of the transmission line	Date of Commercial Operation
1.	400 kV VINDHYACHAL -KORBA	24.7.1988
2.	400 kV ITARSI – INDORE -I	3.12.1989
3.	400 kV VINDHYACHAL –JABALPUR I &-II	7.11.1989
4.	400 kV JABALPUR – ITARSI –1 & II	8.8.1990
5.	440 kV INDORE-ASOJ-1	14.3.1989

3. The tariff for the Transmission System was notified by Ministry of Power at an admitted cost of Rs.26988.25 lakh. The petitioner in the present petition has sought approval for transmission charges as under:

(Rs. in lakh)

Transmission Tariff	2001-2002	2002-2003	2003-2004
Interest on Loan	184.32	139.91	95.50
Interest on Working Capital	113.34	116.26	119.34
Depreciation	733.94	733.94	733.94
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	1518.59	1518.59	1518.59
O & M Expenses	891.73	939.97	988.86
Total	3441.92	3448.67	3456.23

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 Ministry of Power by considering capital cost of Rs. 26988.25 lakh. Therefore, for the purpose of present petition, the capital cost as considered by Ministry of Power 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). 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 at 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:

FERV on the outstanding loan as on 31.03.2001	
IBJ-II (Tranche D)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	60.37
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	8.54
Commerz Bank (Tranche B&C IBJ-II replacement)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	69.25
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001(Rs. in lakh)	9.79
ING Bank (Tranche B&C IBJ-II replacement)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	158.68
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
	22.44
Total	40.77

13. After taking into account FERV amount, the following capital expenditure has been considered in the calculation

	Rs. in lakh
Capital Expenditure up to 31.03.2001 as per previous tariff setting	26988.25
FERV up to 31.03.2001 worked out as above	40.77
Capital Expenditure up to 31.03.2001	27029.02
Additional Capital Expenditure after 31.03.2001	0.00
Capital Expenditure considered for determination of Tariff	27029.02

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.

15. As per Accounting Standard 11 of the Institute of Chartered Accountant of India, exchange difference arising of repayment of liabilities incurred for the purpose of acquiring fixed assets, which are carried in terms of historical cost, should be adjusted in the carrying amount of the respective fixed assets. In other words, FERV as approved above should be added in the respective head of gross block, which was financed, from the foreign loan on which FERV has been allowed. As the above details are not available, FERV amount is allocated to all the heads of gross block in proportion to their ratio to the total gross block., though the petitioner has allocated FERV amount claimed on transmission line, sub-station and PLCC only.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

16. 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 present case, the assets were commissioned before 01.4.1997 and Ministry of Power while notifying tariff for the earlier tariff setting had considered debt and equity on notional basis in the ratio of 50:50 of the Net Fixed Assets as on 1.4.1997 in view of the notification dated 16.12.1997. Therefore, the debt-equity ratio of 50:50 of the Net Fixed Assets as on 1.4.1997 has been considered for determination of tariff in the present petition. FERV allowed has been added to loan and equity in the ratio of 50:50.

INTEREST ON LOAN

17. 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.

18. 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:

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

19. Based on the above methodology, repayments of loan during 2001-2002 and 2002-03 have been arrived at Rs. 2707.10 lakh and Rs.706.34 lakh respectively and have been considered. The loan gets liquidated during 2002-03 and as such no repayments during 2003-04 need to be considered.

20. 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 rate of interest on loan has been arrived at. The details of calculation for weighted average rate of interest on loan are given below:

Calculation of weighted average rate of Interest

(Rs. in Lakh)			
Details of Loan	2001-02	2002-03	2003-04
NTPC Bonds			
Gross Loan -Opening ¹	158.22	158.22	158.22
Cumulative Repayment up to Previous Year	0.00	158.22	158.22
Net Loan-Opening	158.22	0.00	0.00
Repayment during the year	158.22	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	79.11	0.00	0.00
Rate of Interest	9.00%	9.00%	9.00%
Interest	7.12	0.00	0.00
Repayment Schedule	Bullet on 20.03.2002		

Bond-I (Issue-III)			
Gross Loan -Opening ¹	28.30	28.30	28.30
Cumulative Repayment up to Previous Year	0.00	28.30	28.30
Net Loan-Opening	28.30	0.00	0.00
Repayment during the year	28.30	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	14.15	0.00	0.00
Rate of Interest	9.00%	9.00%	9.00%
Interest	1.27	0.00	0.00
Repayment Schedule	Bullet on 10.03.2002		
IBJ-II (Tranche D)			
Gross Loan -Opening ¹	53.33	53.33	53.33
Cumulative Repayment up to Previous Year	39.11	46.22	53.33
Net Loan-Opening	14.22	7.11	0.00
Repayment during the year	7.11	7.11	0.00
Net Loan-Closing	7.11	0.00	0.00
Average Loan	10.67	3.56	0.00
Rate of Interest	0.5225%	0.5225%	0.5225%
Interest	0.06	0.02	0.00
Repayment Schedule	24.09.2001, 24.03.2002, 24.09.2002 and 24.03.2003		
Commerz Bank (Tranche B&C IBJ-II replacement)			
Gross Loan -Opening ¹	28.55	28.55	28.55
Cumulative Repayment up to Previous Year	12.24	20.39	28.55
Net Loan-Opening	16.31	8.16	0.00
Repayment during the year	8.16	8.16	0.00
Net Loan-Closing	8.16	0.00	0.00
Average Loan	12.24	4.08	0.00
Rate of Interest	1.73%	1.73%	1.73%
Interest	0.21	0.07	0.00
Repayment Schedule	24.09.2001, 24.03.2002, 24.09.2002 and 24.03.2003		
ING Bank (Tranche B&C IBJ-II replacement)			
Gross Loan -Opening ¹	37.38	37.38	37.38
Cumulative Repayment up to Previous Year	0.00	0.00	37.38
Net Loan-Opening	37.38	37.38	0.00
Repayment during the year	0.00	37.38	0.00
Net Loan-Closing	37.38	0.00	0.00
Average Loan	37.38	18.69	0.00
Rate of Interest	0.8475%	0.8475%	0.8475%
Interest	0.32	0.16	0.00
Repayment Schedule	Bullet on 24.03.2003		

Total Loan			
Gross Loan -Opening	305.78	305.78	305.78
Cumulative Repayment up to Previous Year	51.35	253.13	305.78
Net Loan-Opening	254.44	52.65	0.00
Repayment during the year	201.79	52.65	0.00
Net Loan-Closing	52.65	0.00	0.00
Average Loan	153.54	26.33	0.00
Rate of Interest	5.8470%	0.9403%	
Interest	8.98	0.25	0.00
¹ Amount of loan outstanding as on 31.03.1992 in the transferor books (as per the affidavit filed on 26.03.2003 by PGCIL)			

21. Based on the above, the petitioner is entitled to interest on notional loan as under:

Calculation of interest on notional loan

(Rs. in lakh)

Interest on Loan	2001-02	2002-03	2003-04
Gross Loan –Opening	9491.19	9491.19	9491.19
Cumulative Repayment up to Previous Year	6077.75	8784.85	9491.19
Net Loan-Opening	3413.44	706.34	0.00
Repayment during the year	2707.10	706.34	0.00
Net Loan-Closing	706.34	0.00	0.00
Average Loan	2059.89	353.17	0.00
Rate of Interest	5.8470%	0.9403%	0.0000%
Interest	120.44	3.32	0.00

22. Madhya Pradesh State Electricity Board in its reply has stated that the Transmission System was progressively completed and put under commercial operation from 1988 to 1990 and, therefore, there was no necessity for fresh foreign

loan during 1998 and 1999. The petitioner has stated that loans taken during 1998 and 1999 relate to refinancing of earlier loans. In view of the explanation given by the petitioner, refinanced loans have been taken into consideration.

23. IBJ-II (Tranche D) and ING Bank (Tranche B&C IBJ-II replacement), loans carry floating rate of interest and the interest rate as submitted by the petitioner in its affidavits filed before the Commission stated to be prevailing as on 01.04.2001 has been taken in the calculation. In view of the above, any changes in or resetting of the interest rate of the above loans during the tariff period covered in this petition would require settlement mutually between the parties. In case the parties are unable to resolve the same, any one of them may approach the Commission for appropriate decision.

DEPRECIATION

24. 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.

25. The petitioner has claimed the depreciation on the capital expenditure in accordance with above principles.

26. It is noted that repayment of the entire notional loan considered for tariff calculation is over in the year 2002-03. Therefore, depreciation for the year 2003-04 is to be calculated by spreading the same over the balance useful life of the asset. The Transmission System was declared under commercial operation as indicated in para 2 above.

27. The assets had thus been in operation for about 11 years as on 1.4.2001, considering life of the assets from 1.4.1989. As per the notification dated 26.3.2001, the useful life of the transmission line at 66 kV and above is 35 years, for sub-station equipment 25 years. The life prescribed for communication equipment is (PLCC) is 15

years and that for building is 50 years. The assets covered in the present petition are transmission lines, sub-stations and communication equipment. Therefore, the useful life of the transmission system is to be the average life of all the assets. The weighted average life of the transmission system has been calculated by taking the completion cost of the different assets as given below:

Item	Completion cost (Rs in lakh)	Useful life (Years)
Transmission Line	21336.12	35
Sub-station	4643.69	25
PLCC	78.08	15
Buildings	700.02	50

$$\begin{aligned} \text{Weighted Average Life} &= 21336.12 \times 35 + 4643.69 \times 25 + 78.08 \times 15 + 700.02 \times 50 / (21336.12 + 4643.69 + 78.08 + 700.02) \\ &= 33.60 \text{ years (Say, 34 years)} \end{aligned}$$

28. The balance useful life as on 1.4.2001 has thus been arrived at 23 (34 – 11) years.

29. Based on the above, the depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 27929.02 lakh at the rates as prescribed in the notification dated 26.3.2001. For working out cumulative depreciation, the depreciation as considered by Ministry of Power earlier has been taken into consideration.

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

		(Rs. in lakh)		
		2001-02	2002-03	2003-04
Depreciable Value	24326.12			
Balance Useful life of the asset	23.00	23.00	22.00	21.00

Remaining Depreciable Value		10201.73	9410.80	8676.88
Depreciation		733.92	733.92	413.18

ADVANCE AGAINST DEPRECIATION

31. 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 1/12th of original loan amount minus depreciation as per schedule.

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

33. 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)			
Advance Against Depreciation	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	790.93	790.93	790.93

Scheduled Repayment of the Loan(s)	2707.10	706.34	0.00
Minimum of the above	790.93	706.34	0.00
Depreciation during the year	733.92	733.92	413.18
Advance Against Depreciation	57.02	0.00	0.00

OPERATION & MAINTENANCE EXPENSES

34. 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.

35. 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

36. 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.

37. 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

38. 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 Vindhyachal -I 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

39. 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 12th 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

40. 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.

41. 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.

42. 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.

43. 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

44. 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.

45. 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.

46. In case of Corporate Office, the following expenses have not been admitted for reimbursement:

- (a) Donation of Rs. 0.05 lakh, Rs. 30 lakh, Rs. 34.78 lakh and Rs. 600.03 lakh for the years 1995-96, 1996-97, 1998-99 and 1999-2000, as these donations are not related to transmission business. The expenditure on account of the donations need be borne by the petitioner out of other profits of the corporation.
- (b) Provisions of Rs. 1107.61 lakh, Rs. 385.8 lakh and Rs. 0.27 lakh for the year 1996-97, 1997-98 and 1999-2000. These provisions were made for the loss of stores in 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

47. The details of the recoveries for the ERTS and the Corporate Office were furnished by the petitioner vide affidavit dated 6th 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

48. 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.

49. 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 Expenses	96.08	96.08	110.20	110.20	156.49	156.49	236.05	229.69	243.63	243.63
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
TOTAL	1243.36	1119.26	1380.95	1111.37	2612.71	2238.05	3523.79	3156.86	4481.09	3933.67
Less : Recoveries		2.32		4.13		7.93		20.10		28.23
Net O&M Expenses	1243.36	1116.94	1380.95	1107.24	2612.71	2230.12	3523.79	3136.76	4481.09	3905.44

Method of Normalizing O&M Expenses

50. 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_i and OMS_i are O&M expenses for the lines and for the sub-stations for the ith year respectively.

LL_i and BN_i are the total line length in Ckt. km and total number of bays in the ith year respectively.

51. 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	OML (O&M for lines)= 0.7 X S. NO.3	781.86	775.07	1561.08	2195.73	2733.81	8047.55					
5	OMS (O&M for substation) = 0.3XS.NO.3	335.08	332.17	669.03	941.03	1171.63	3448.94					
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	32837.00					
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	395.00					
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	NOMLL(allowable O&M per unit of line length)			0.2311	0.2542	0.2796		0.2796	0.2964	0.3142	0.3330	0.3530
17	NOMBN(Allowable O&M per bay)			8.2269	9.0496	9.9546		9.9546	10.5519	11.1850	11.8561	12.5675
18	NOMLL(as calculated by petitioner)			0.28				0.34	0.36	0.38	0.40	0.41
19	NOMBN(as calculated by petitioner)			10.06				12.17	12.90	13.67	14.49	15.36

52. 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.

53. 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).

54. 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)
1879	13	735.766	1879	13	779.912	1879	13	826.706

RETURN ON EQUITY

55. 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. 9308.50 lakh being 50% of value of Net Fixed Assets as on 1.4.1997 has been considered. Ministry of Power vide its notification dated 14.5.1999 had allowed additional equity of Rs.162.31 lakh on account of additional capitalisation. 50% of

additional capitalisation on Account of FERV has been further added to equity. The details of equity considered for the purpose of the present petition are given hereunder:

	Rs. in lakh
Equity as allowed by Ministry of Power in previous tariff setting	9470.81
Notional Equity arising out of FERV	20.39
Total	9491.19

56. On the above basis, the petitioner shall be entitled to return on equity of Rs. 1518.59 lakh each year during the tariff period.

INTEREST ON WORKING CAPITAL

57. 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 1/5th 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%.

58. In keeping with the above methodology, working capital has been worked out. The value of maintenance spares for 1997-98 has been taken as considered by

Ministry of Power for the previous tariff period and the same has been escalated up to 2000-01 as per respective WPI/CPI and thereafter the same has been further escalated @ 6% per annum for the tariff period 2001-02 to 2003-04. Madhya Pradesh State Electricity Board has pointed out that the amount of initial spares has not been specified. In view of this, the value of initial spares has been considered 'nil'. 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)

Working Capital		2001-02	2002-03	2003-04
Escalation for Maintenance Spares	6%			
Maintenance Spares	318.36			
Less: 1/5 th of Initial Spares	0.00			
Maintenance Spares	318.36	337.46	357.71	379.17
O & M expenses		61.31	64.99	68.89
Receivables		545.72	524.10	477.49
Total		944.50	946.81	925.55
Rate of Interest		11.50%	11.50%	11.50%
Interest		108.62	108.88	106.44

TRANSMISSION CHARGES

59. 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	120.44	3.32	0.00
Interest on Working Capital	108.62	108.88	106.44
Depreciation	733.92	733.92	413.18
Advance against Depreciation	57.02	0.00	0.00
Return on Equity	1518.59	1518.59	1518.59
O & M Expenses	735.77	779.91	826.71
Total	3274.35	3144.62	2864.92

60. 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 it is already not included in O&M charges.

61. 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.

62. The transmission charges approved by us shall be included in the regional transmission tariff for Western Region and shall be shared by the regional beneficiaries in accordance with the notification dated 26.3.2001.

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

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

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

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

New Delhi dated the 18th July 2003