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.48/2002

In the matter of

Petition for approval of tariff for 50 MVAR Reactor along with associated equipment at Chandrapur sub-station in Western Region for the period 1.4.2001 to 31.3.2004.

And in the matter of

Power Grid Corporation of India Ltd. …. **Petitioner**

Vs

1. 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 …..**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 (Comml), 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 50 MVAR Reactor along with associated equipment at Chandrapur sub-station 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 petitioner was entrusted with the implementation of 50 MVAR Reactor along with associated equipment at Chandrapur sub-station in Western Region. The respondents in the 98th Meeting of WREB held on 3.3.1995 had agreed to share the transmission charges on account of implementation of 50 MVAR Reactor at Chandrapur sub-station. The Board of Directors of the petitioner company accorded investment approval for implementation of 50 MVAR Reactor along with associated equipment at Chandrapur sub-station in its 32nd meeting held on 18.3.1994 at an estimated cost of Rs.630.00 lakh.

3. The petitioner, in the present petition, has sought approval for transmission charges for the years 2001-02, 2002-03 and 2003-04 as under:

(Rs. in lakh)

Transmission Tariff	2001-2002	2002-2003	2003-2004
Interest on Loan	13.89	13.08	12.22
Interest on Working Capital	2.29	2.33	2.38
Depreciation	15.83	15.83	15.83
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	37.15	37.15	37.15
O & M Expenses	13.67	14.49	15.36
Total	**82.83**	**82.88**	**82.94**

4. The details of working capital and interest thereon submitted by the petitioner are as under:

Components of Working Capital	2001-02	2002-03	2003-04
O&M expenses	1.14	1.21	1.28
Receivables	13.80	13.81	13.82
Total	19.91	20.29	20.68
Rate of interest	11.50%	11.50%	11.50%
Interest	2.29	2.33	2.38

5. 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.

6. The petitioner has commissioned the above assets on 1.4.1997 at a completion cost of Rs.398.31 lakh. The tariff for the period 1.4.1997 to 31.3.2001 has already been awarded by the Commission vide its order dated 6.6.2002 in Petition No.52/2001.

CAPITAL COST

7. 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 mentioned in para 5 above, the tariff for 50 MVAR Reactor along with associated equipment at Chandrapur sub-station was notified by the Commission vide its order dated 6.6.2002 in petition No 52/2001. The capital expenditure upto

31.3.2001 was Rs.391.41 lakh in the said tariff setting. The same has been taken as the capital base as on 31.3.2001.

ADDITIONAL CAPITALISATION

8. 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. Thus, the new capital base can be given by the formula.

$CB(ac) = CB_i + AC$

Where

$CB(ac)$ = Capital Base after taking the impact of additional capitalisation due to works into consideration.

CB_i = Initial Capital Base without the impact of additional capitalisation, upto 31.3.2001.

9. The petitioner has not indicated any new capital works, therefore, has not claimed any additional capital expenditure for the years 2001-02, 2002-03 & 2003-04 in the petition. Accordingly, the Capital Base as on 31.3.2001 would be Rs. 391.41 lakh.

EXTRA RUPEE LIABILITY

10. 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.

11. As per AS 11, "Exchange differences arising on repayment of liability incurred for the purpose of acquiring fixed assets, which are carried in terms of historical cost, should be adjusted in the carrying amount of respectable fixed assets", i.e. extra rupee liability arising out of the impact of foreign exchange rate variation (FERV) is to be capitalised. This obviously changes the capital base. The capital base at the end of the relevant year, duly taking into consideration impact of FERV, is given by the formula :

$$CB_{ferv} = CB_{ac} + ERL \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(I)}$$

and

$$ERL = OLFC \times (ER_f - ER\ i) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(II)}$$

Where,

CB_{ferv}	= Capital base up to the last day of the financial year preceding the year from which the tariff is being set, duly taking into consideration impact of FERV. In the instant case it would be as on 31.3.2001.
CB_{ac}	= Capital base with the impact of additional capitalisation due to works but without the impact of FERV, up to the last day of the financial year preceding the year from which the tariff is to be set. on 31.3.2001
ERL	= Extra rupee liability i.e. increase or decrease in the capital base due to FERV
OLFC	= Outstanding loan in foreign currency as on the last day of the financial year preceding the year from which the tariff is to set. In the instant case it would be exchange rate as on 31.3.2001.
ER_f	= Final exchange rate as on the last day of the financial year preceding the year from which the tariff is to set. In the instant case it would be exchange rate as on 31.3.2001.
ER_i	= Initial exchange rate as on the date of Commercial Operation or 1.4.1992, whichever is later. 1.4.1992 signifies the date of take over of assets by the petitioner from NTPC, NHPC, etc. as the case may be.

12. Extra rupee liability calculated as per equation No.II above works out to be Rs. 48.26 lakhs as shown below:

Name of the foreign currency loan	= IBRD
Outstanding loan as on 31.3.2001 in lakh of USD	= 4.51
Exchange rate (ER_f) as on 31.3.2001 in INR to USD	= 46.88
Exchange rate (ER_l) as on the date of commercial operation i.e. 1.4.1997 in INR to USD	= 36.18

Therefore, ERL = Rs.4.51(46.88 – 36.18)

= Rs.48.26 lakh.

13. The capital base as on 31.3.2001, duly taking into consideration the impact of additional capitalisation due to work as also extra rupee liability due to FERV, as per equation No.I above, works out to Rs 439.67 lakh as detailed below:

CB_{ferv} = CB_{ac} + ERL

= Rs.391.41 lakh + Rs.48.26 lakh (Rs.391.41 lakh flows out of para 8)

= Rs.438.97 lakh.

CAPITAL STRUCTURE (DEBT– EQUITY RATIO)

14. 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.

15. The petitioner has, in the present petition (petition no. 48/2002), adopted the base debt : equity ratio of 46.88 : 53.12 , which is the actual structure at which the project has been executed. Thus, his capital base CB has the debt and equity, in real terms, as under:

Debt = Rs.183.49 lakh

Equity = Rs.207.92 lakh

Total = Rs 391.41 lakh

16. The petition does not involve any additional capitalisation due to works. However, it has an extra rupee liability on account of FERV. The sum total of the additional liability is thus Rs 48.26 lakh. The petitioner has divided this amount in a ratio of 50 : 50 as debt and equity. Thus, the new capital structure, on which the petitioner has claimed the tariff, becomes:

(Rupees in lakh)

	CB	AC	ERL	Total
Debt	183.49	0	24.13	207.56
Equity	207.92	0	24.13	232.16
Total	**391.41**	**0**	**48.26**	**439.72**

17. The petitioner has neither given any reasons in the petition nor explained during the hearings, reasons for adopting a debt : equity ratio of 50 : 50 for additional liability as against the original ratio of 46.88 : 53.12. We fail to find any rationale in the above departure. We consider it logical and rational to retain the original debt and equity structure. Thus, the new capital base, allowed by us, for the purpose of determining the tariff is as under:

(Rs. in lakh)

	CB	AC	ERL	Total	Ratio
Debt	183.49	0	22.62	206.11	46.88
Equity	207.92	0	25.63	233.55	53.12
Total	**391.41**	**0**	**48.26**	**439.67**	**100.00**

(Neglect rounding off effect)

18. 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.

INTEREST ON LOAN

19. 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.

20. Computation of interest on loan has been broken into two portions – interest liability on the original loan and interest liability on notional loan arising out of additional liability discussed in para 16. Step-by-step calculations, in this regard are given below:

	As per petition			**As per the Commission**		
	2001-02	2002-03	2003-03	2001-02	2002-03	2003-03
IBRD (Original loan)						
Gross loan – opening balance	5.070			5.070		
Cumulative repayment up to the previous year	0.560			0.560		
Net loan – opening balance	4.510			4.510		
Rate of interest in %	6.110			6.110		
Exchange rate	46.880			36.18		
Repayment during the year –Ist June	0.140	0.120	0.130	0.150	0.130	0.140
Repayment during the year – Ist December	0.120	0.130	0.140	0.130	0.140	0.140
Total repayment during the year	0.260	0.250	0.270	0.280	0.270	0.280
Net loan - closing	4.250	4.000	3.730	4.230	3.970	3.690
Amount of interest in lakh of USD	0.2660	0.2509	0.2349	0.2650[(1)]	0.2490[(1)]	0.2320[(1)]
Interest in lakh of Rs	12.470	11.760	11.010	9.600	9.0200	8.410
Notional Loan (Extra Rs Liability)						
Extra Rupee Liability (para 11)	48.26			48.26		
Debt ratio in %	50.00			46.88		
Notional loan amount	24.13			22.62		
Net loan - opening	24.13	22.39	20.65	22.62	21.23	19.90
Repayment during the year	1.74[2]	1.74[2]	1.74[2]	1.39[3]	1.33[3]	1.41[3]
Net loan - closing	22.39	20.65	18.92	21.23	19.90	18.49
Average loan	22.26	21.52	19.79			
Interest rate in %	6.11	6.11	6.11	6.11	6.11	6.11
Interest	1.42	1.32	1.21	1.33	1.25	1.17
Total interest (Original +notional loan)	13.89	13.08	12.22	10.93	10.27	9.58

[1]The interest calculation is on actual basis for the two halves of the year. It is not a simple multiplication of interest rate with net loan – closing.

[2]The petitioner has worked out the repayment on the basis of depreciation amount of the notional loan.

[3]Based on the repayment schedule of the original loan.

21. It may be seen that the interest liability computed by the petitioner differs with that of the one computed by the Commission. We have examined the issue critically to identify the areas of difference and observe that the repayment schedules in the two computations have different value. Also, the exchange rates are different. It may be noted that the loan (the IBRD loan) is not a project specific loan but a loan package, out of which a portion has been earmarked for the works in question. This implies that the repayment schedule has to be reworked on notional basis as per formula given below:

$$NRS = ORS \times (L_a / L_t)$$

Where,

NRS = Notional repayment schedule,

ORS = Original repayment schedule of the loan package,

L_a = Amount of loan allocated to the scheme out of the loan package, and

L_t = Total amount of loan package from which the loan has been allocated.

22. The interest computed by the petitioner does not conform to the above formula. Further, in order to convert the USD to INR, the petitioner has used the exchange rate as on 31.3.2001. This should have been 36.18 as on the date of commercial operation. This is based on the fact that the interest computation has been broken into two parts – original loan and notional loan and therefore, interest liability of the original loan has to be computed as if there was no change in the foreign exchange rate, the impact of which is computed separately. If this is not done, there would be double accounting for FERV.

23. Coming to the interest liability arising out of notional loan due to the impact of FERV, the first premise would be that the notional loan would have the same characteristic as that of the main loan i.e. it would have the same repayment period/schedule, interest rate, etc., as the main loan. It is observed that the petitioner has adopted a repayment schedule based on the amount of depreciation and not on the basis of notional repayment schedule. In addition, the division of additional liability in the ratio of 50 : 50, by the petitioner, as discussed in para 16 has also contributed in widening the difference.

24. Madhya Pradesh State Electricity Board in its reply has submitted that the supporting document filed by the petitioner indicates the interest rate at 5.11% for IBRD loan but does not indicate 1% towards other charges. The petitioner in the affidavits filed before the Commission regarding details of loan has indicated that the additional 1% is on account of guarantee fees. Therefore, in the calculation, interest rate of 6.11% has been considered for IBRD loan.

DEPRECIATION

25. 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.

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

27. The depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs.439.67 lakh at the rates prescribed in the notification dated 26.3.2001. While approving depreciation component of tariff, the weighted average depreciation rate of 3.60% has been worked out. For working out cumulative depreciation, the depreciation as per the Commission's order dated 6.6.2002 has been taken into consideration. The calculations in support of weighted average rate of depreciation of 3.60% are appended hereinbelow:

(Rs. in lakh)

	Commission's Order dated 6.6.2002	FERV as on 31.03.2001	Total Cost including FERV	Approved capital cost	Rate of Depreciation	Depreciation
Capital Expenditures as on 31.03.2001						
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	391.41	48.26	439.67		3.60%	15.83
Transmission Line	0.00	0.00	0.00		2.57%	0.00
PLCC	0.00	0.00	0.00		6.00%	0.00
Total	**391.41**	**48.26**	**439.67**	**630.00**		**15.83**

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

(Rs. in lakh)

		2001-02	2002-03	2003-04
Rate of Depreciation	3.60%			
Depreciable Value	395.70			
Remaining Depreciable value		272.94	257.11	241.28
Depreciation		**15.83**	**15.83**	**15.83**

ADVANCE AGAINST DEPRECIATION

29. 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 = ORS – D,

Subject to condition that ORS shall not be greater than 1/12th of the gross loan. In case it is more than 1/12th of the gross loan, then ORS to be replaced by 1/12th of the gross loan.

Where,

AAD = Required Advance Against Depreciation

ORS = Original repayment schedule. This would include repayment required on account of additional capitalisation and extra rupee liability on account of FERV, if any.

D = Depreciation

30. A comparative table of Advance against depreciation as claimed in the petition and as worked out by the commission is given below:

(Amount Rs.in lakh)

		As per Petition			As allowed by the Commission		
		2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
1.	**Repayment of loan**						
1.1	IBRD loan repayment in USD	0.260	0.250	0.270	0.277	0.265	0.281
1.2	Exchange rate	46.88			36.18		
1.3	IBRD loan in INR	12.19	11.72	12.66	10.02	9.59	10.17
1.4	Notional loan repayment	0.00	0.00	0.00	1.39	1.33	1.41
1.5	Total repayment in INR (1.3+1.4)	12.19	11.72	12.66	11.41	10.92	11.58
2.	**1/12th of Gross loan**						
2.1	IBRD loan in USD	5.07	5.07	5.07	5.07	5.07	5.07
2.2	Exchange rate	46.88			36.18		
2.3	IBRD loan in INR	183.43	183.43	183.43	183.43	183.43	183.43
2.4	Notional loan IBRD	24.13	24.13	24.13	22.62	22.62	22.62
2.5	Total loan in INR (2.3+2.4)	207.56	207.56	207.56	206.06	206.06	206.06
2.6	1/12th of total loan	17.30	17.30	17.30	17.17	17.17	17.17
3.	**Minimum of 1.5 and 2.6 above**	12.19	11.72	12.66	11.41	10.92	11.58
4.	**Depreciation during the year**	15.83	15.83	15.83	15.83	15.83	15.83
5.	**Therefore, AAD**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

31. From the table above, it can be seen that in spite of the fact that the petitioner has not adopted the approach as prescribed under the notification dated 26.3.2001 in various areas, the net result is that the requirement of Advance Against Depreciation is `nil'. The areas of difference being adoption of a debt and equity in ratio of 50 : 50, adopting exchange rate as on 31.3.2001 for computing extra rupee laibility on account of FERV as against exchange rate as on the date of commercial operation.

OPERATION & MAINTENANCE EXPENSES

32. 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:

O&M expenses per Unit of the line length in Kms (OMLL) = Expenses for lines (OML)/Average line length in Kms (LL)

O&M expenses for sub-stations (OMBN) = O&M expenses for substations (OMB)/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.

33. 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

34. 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.

35. 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

36. 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 nomalisation. 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

37. 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

38. 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.

39. 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.

40. 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.

41. 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

42. 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.

43. 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.

44. 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

45. 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

46. 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.

47. 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)

	1995-96		**1996-97**		**1997-98**		**1998-99**		**1999-2000**	
Items	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

48. 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

$$AVOMLL = \frac{1}{5} \sum_{i\,=\,1995\text{-}1996}^{1999\text{-}2000} \left| \frac{OML\ i}{LL\ i} \right|$$

$$AVOMBN = \frac{1}{5} \sum_{i\,=\,1995\text{-}1996}^{1999\text{-}2000} \left| \frac{OMS\ i}{BN\ i} \right|$$

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 i^{th} year respectively.

LL_i and and BN_i are the total line length in Ckt. km and total number of bays in the i^{th} year respectively.

49. 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**

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.

50. The differences in NOMLL and NOMBN 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.

51. 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).

52. 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)
0	1	11.185	0	1	11.856	0	1	12.567

RETURN ON EQUITY

53. 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. 233.55 lakh has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 37.37 lakh each year during the tariff period.

INTEREST ON WORKING CAPITAL

54. 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%.

55. 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 1/5th 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. Madhya Pradesh State Electricity Board has pointed out that the amount of initial spares was not specified in the petition. In the calculation, it is considered as '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 by Madhya Pradesh State Electricity Board. 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%			
Period in 2000-01	1.00			
On Capital Expenditures up to 31.03.2000	4.67			
On Capital Expenditures during the year 2000-01	0.00			
Maintenance Spares	4.67			
Less: 1/5th of Initial Spares	0.00			
Maintenance Spares	4.67	4.95	5.25	5.56
O & M expenses		0.93	0.99	1.05
Receivables		12.91	12.92	12.93
Total		18.80	19.16	19.54
Rate of Interest		11.50%	11.50%	11.50%
Interest		**2.16**	**2.20**	**2.25**

TRANSMISSION CHARGES

56. 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	10.93	10.27	9.58
Interest on Working Capital	2.16	2.20	2.25
Depreciation	15.83	15.83	15.83
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	37.37	37.37	37.37
O & M Expenses	11.19	11.86	12.57
Total	**77.48**	**77.53**	**77.59**

57. 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.

58. 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.

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

60. This order disposes of Petition No.48/2002.

Sd/-	**Sd/-**	**Sd/-**
(K.N. SINHA)	**(G.S. RAJAMANI)**	**(ASHOK BASU)**
MEMBER	**MEMBER**	**CHAIRMAN**

New Delhi dated the 31st July, 2003