

**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.72/2002

In the matter of

Transmission Tariff for Vindhyachal Stage II Transmission System in Western
Region for 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 Daman & Diu, Daman
 6. Electricity Department, Admn. of Dadra and Nagar Haveli, Silvassa
 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 (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 Vindhyaachal Stage II 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. Ministry of Power vide its letter dated 6.10.1995 had approved implementation of Vindhayachal Stage II Transmission System in the Western Region at an estimated cost of Rs.65771.00 lakh, including IDC of Rs.11029.00 lakh. The components of the transmission system approved by Ministry of Power were as under :-

- (a) Transmission Lines.
 - (i) 400 kV D/C Vindhyachal-Bina transmission line via intermediate sub-station near Katni.
 - (ii) 400 kV S/C Korba-Raipur transmission line.
 - (iii) LILO of 400 kV D/C Korba-Bhilai transmission line at Raipur.
 - (iv) Shifting of 400 kV S/C Korba-Bhilai transmission line from Bhilai to Raipur.
 - (v) Shifting of 400 kV D/C Bhilai-Chandrapur transmission line from Bhilai to Raipur.
 - (vi) Shifting of 400 kV S/C Bhilai-Koradi transmission line from Bhilai to Raipur.

(b) Sub-stations.

- (i) New 400/220 kV intermediate sub-station (POWERGRID) near Katni with transformation capacity of 1 x 315 MVA.
- (ii) New 400 kV sub-station at Bina with suitable inter-connection with existing Bina (MPEB) sub-station.
- (iii) Extension of 400 kV Switchyard at Korba STPP (NTPC) by one 400 kV bay.
- (iv) New 400 kV sub-station at Raipur (POWERGRID) with transformation capacity of 2 x 315 MVA.

3. Subsequently, Ministry of Power vide its letter dated 17.11.1995 substituted "extension of 400 kV sub-station at Bina (MPEB) by two 400 kV bays" for "new 400 KV sub-station at Bina with suitable inter-connection with existing Bina (MPEB) sub-station" under the sub-head "sub-stations". It is stated that at a meeting with the respondents held on 26.9.1996, some modifications that included additions to and deletions in scope of work at Raipur sub-station were agreed to. The revised scope of work, as a result of this agreement between the parties was as under :-

- (a) Termination of new 400 kV S/C Korba(NTPC)-Raipur transmission line;
- (b) LILO of one circuit of existing 400 kV Korba-Bhilai transmission line at Raipur;
- (c) LILO of one circuit of existing 400 kV D/C Bhilai-Chandrapur transmission line at Raipur; and
- (d) Provision of two nos. of 400/220 kV, 315 MVA transformers along with 220 kV bays at Raipur.

4. However, shifting of Korba-Bhilai from Bhilai to Raipur, Bhilai-Chandrapur from Bhilai to Raipur and Bhilai-Koradi from Bhilai to Raipur was deleted from the scope of work originally approved by Ministry of Power.

5. The revised Government sanction for changes in the scope of work, as noted above, had not been issued.

6. The final scope of work to be implemented under Vindhyachal Stage II Transmission System, after changes agreed to between the petitioner and the respondents is as under :-

(a) Transmission Lines.

- (i) 400 kV D/C Vindhyachal-Satna and Satna-Bina transmission line with substation at Satna.
- (ii) 400 kV S/C Korba-Raipur transmission line.
- (iii) LILO of one circuit of 400 kV D/C Korba-Bhilai transmission line at Raipur.
- (iv) LILO of one circuit of 400 kV D/C Bhilai-Chandrapur transmission line at Raipur.

(b) Sub-stations.

- (i) New 400/220 kV intermediate sub-station (POWERGRID) near Satna with transformation capacity of 1 x 315 MVA ICT.
- (ii) Extension of 400 kV sub-station at Bina (MPEB) by two 400 kV bays.
- (iii) Extension of 400 kV Switchyard at Korba STPP (NTPC) by one 400 kV bay.
- (iv) New 400/220 kV sub-station at Raipur (POWERGRID) with transformation capacity of 2 x 315 MVA ICTs.

7. The petitioner has built and commenced operation of the different components of Vindhyachal Stage II Transmission System for which approval of transmission charges has been sought, on the dates as indicated below against each in Table I: -

TABLE I

Sl. No.	Name of Transmission Line	Date of commercial operation
1.	400 KV D/C Vindhyachal-Satna-Bina transmission lines with associated bays and 400/220 KV sub-station at Satna (1 x 315 MVA ICT)	1.8.1999
2	400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III new sub-station at Raipur with 315 MVA Interconnecting Transformer I and bus reactor & associated bays	1.1.2000
3	315 MVA Interconnecting Transformer II at Raipur	1.4.2000
4	LILO of Circuit II of 400 KV D/C Bhilai-Chandrapur line at Raipur	1.4.2000

8. The tariff for the different elements of the Transmission System from the respective dates of commercial operation and up to 31.3.2001 was approved by the Commission by a common order dated 18.3.2003 in petitions No 10/1999 and 14/2000, the relevant details of which are extracted below:

(Rs. in lakh)				
Name of the Element	Apportioned approved cost	Approved capital cost	Actual capital cost as per C.A. certificate	Admitted capital cost as on 31.03.2001 (excluding FERV)
(i)400 kV D/C Vindhyachal -Satna & Satna –Bina T/L & 400/220 kV S/S at Satna and 400 kV bays in MPEB S/S at Bina	41393.00	65771.00	43058.69	43058.69
(ii)400 kV S/C Korba-Raipur Tr.Line & associated bays at Korba & Raipur,315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	15845.00		15662.06	15662.06
(iii)315 MVA Inter Connecting Transformer-II with associated bays & Bus Reactor at Raipur	1961.00		941.92	941.92
(iv) LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur			1564.62	1564.62
Total	59199.00	65771.00	61227.29	61227.29

9. The petitioner, in the present petition, has sought approval for transmission charges for the years 2001-02, 2002-03 and 2003-04 as under, clubbing tariff for 315 MVA ICT II and LILO of 44kV D/C Bhilai-Chanderpur line, circuit II:

(Rs. in lakh)

	400 kV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 kV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA interconnecting Transformer II		LILO of 400 kV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Interest on Loan	3453.12	3337.05	3184.46	1427.48	1380.27	1304.76	235.62	227.83	214.91
Interest on Working Capital	173.86	175.76	193.41	63.94	64.48	76.34	10.53	10.60	12.61
Depreciation	1241.41	1241.41	1241.41	477.45	477.45	477.45	82.82	82.82	82.82
Advance Against Depreciation	0.00	0.00	831.78	0.00	0.00	603.99	0.00	0.00	103.69
Return on Equity	839.53	839.53	839.53	205.22	205.22	205.22	28.41	28.41	28.41
O & M Expenses	522.04	550.32	579.00	164.48	173.74	183.30	22.79	24.09	25.44
Total	6229.96	6144.07	6869.59	2338.57	2301.16	2851.06	380.17	373.75	467.88

10. The petitioner has submitted the following details in support of its claim for interest on working capital:

(Rs. In lakh)

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA Interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Maintenance Spares	429.96	458.44	488.62	152.54	162.65	173.36	26.33	27.91	29.58
O & M expenses	43.50	45.86	48.25	13.71	14.48	15.28	1.90	2.01	2.12
Receivables	1038.33	1024.01	1144.93	389.76	383.53	475.18	63.36	62.29	77.98
Total	1511.79	1528.31	1681.80	556.01	560.66	663.82	91.59	92.21	109.68
Rate of Interest	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%
Interest	173.86	175.76	193.41	63.94	64.48	76.34	10.53	10.60	12.61

11. 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

12. 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 8 above, the tariff for the Transmission System was notified by the Commission vide its order dated 18.3.2003 in petition No 10/1999 and 14/2000. The capital expenditure up to 31.3.2001 was Rs.61227.29 lakh in the said tariff setting, the details of which are given at para 8 above. The same has been taken as the capital base as on 31.3.2001 for determination of tariff in the present petition.

ADDITIONAL CAPITALISATION

13. 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.

14. 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

15. 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.

16. 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)

17. We have considered the matter. FERV amount calculated in the above manner comes to Rs. 3201.72 lakh as per detailed calculations given below:

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays	400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays	315 MVA interconnecting Transformer II	LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
ADB-I	FERV on outstanding foreign loan as on 31.3.2001	FERV on outstanding foreign loan as on 31.3.2001	FERV on outstanding foreign loan as on 31.3.2001	
Outstanding balance as on 31.3.2001 (in USD)	745.36	208.70	30.80	
Exchange Rate as on 31.3.2001	46.88	46.88	46.88	
Exchange Rate as on DOCO/1.4.1992	43.57	43.80	43.90	
FERV on outstanding loan as on 31.03.2001 (Rs in lakh.)	2467.14	642.80	91.78	

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 01.04.1992 of the respective transmission elements claimed in the petition. If petitioner fails to submit the certificate within four weeks of this order, no amount on account of FERV would be allowed as pass through in tariff of concerned line.

19. It is also observed that 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, the FERV as per para 17 above should be added in the respective head of gross block, which was financed, from the foreign loan on which FERV is proposed to be 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. The petitioner has allocated FERV amount claimed on transmission line, sub-station and PLCC only.

20. The capital expenditure considered in the calculations for tariff is under:

(Rs. in lakh)					
Name of the Element	Capital Expenditure up to 31.03.2001 as per previous tariff setting	FERV up to 31.03.2001 worked out as above	Capital Expenditure up to 31.03.2001	Additional Capital Expenditure after 31.03.2001	Capital Expenditure considered for determination of Tariff
(i)400 kV D/C Vindhychal -Satna & Satna -Bina T/L & 400/220 kV S/S at Satna and 400 kV bays in MPEB S/S at Bina	43058.69	2467.14	45525.83	0.00	45525.83
(ii)400 kV S/C Korba-Raipur Tr.Line & associated bays at Korba & Raipur,315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	15662.06	642.80	16304.86	0.00	16304.86
(iii)315 MVA Inter Connecting Transformer-II with associated bays & Bus Reactor at Raipur	2506.54	91.78	2598.32	0.00	2598.32
(iv) LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur					

SOURCES OF FINANCING. DEBT – EQUITY RATIO

21. 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 actual debt and equity. In the present case, the assets were commissioned before 1.4.2001 and the Commission while notifying tariff for the period ending 31.3.2001 had considered

debt and equity on actual basis. Therefore, the same debt-equity ratio as considered by the Commission in its order dated 18.3.2003 has been maintained for determination of tariff in the present petition. FERV allowed has been added to the loan and equity as on 01.04.2001 in the same ratio though the petitioner has divided debt and equity notionally in the ratio of 50:50. The necessary details in this regard are extracted below:

Name of the element	Debt-equity ratio as per previous tariff setting	Debt-equity ratio as considered in current tariff setting
400 kV D/C Vindhyachal Bina-Satna & Bina T/L and 400/220 kV S/S Satna and 400 kV bays in MPEB S/S at Bina	90.68 : 9.32	90.68 : 9.32
400 kV S/C Korba-Raipur Tr. Line & associated bays at Korba & Raipur, 315 MVA Inter-connecting Transformer-I with associated bays and Bus Reactor associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	93.86 : 6.14	93.86 : 6.14
315 MVA Inter-connecting transformer-II with associated bays & Bus Reactor at Raipur	89.91 : 10.09	94.75 : 5.25 [@]
LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	97.66 : 2.34	

22. Respondent No 1 has objected to different debt-equity ratios followed by the petitioner for different lines forming part of the Transmission System. We find that equity component in these petitions is less than 10%, which goes to benefit the respondents since the cost of servicing equity is far more as compared to cost of servicing loan. Therefore, we do not take any cognisance of the objection.

INTEREST ON LOAN

23. As per para 4.4(a) of the notification dated 26.3.2001, Interest on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the financial package approved by the Authority or any independent agency.

24. The petitioner has claimed interest on loan in the following manner:

- (i) Closing balance of the loans as on 31.3.2001 as was submitted to the Commission in the petitions for previous tariff setting has been taken as the opening balance as on 1.4.2001.
- (ii) In case of loans denominated in foreign currency, the interest has been worked out in foreign currency and the same has been multiplied with exchange rate as on 31.3.2001
- (iii) Interest on notional loan has been claimed on the basis of
 - (a) division of FERV into notional loan and equity in the ratio of 50:50,
 - (b) depreciation on FERV as repayment during the year, and
 - (c) weighted average rate of interest of total outstanding loan as on 1.4.2001.

25. In the calculation, the interest on loan has been worked out by us as detailed below:

net outstanding loan as on 31.3.2001 as considered by the Commission in its order dated 18.3.2003 for determination of annual transmission charges for the period up to 31.3.2001 has been considered,

(ii) The repayments for the year 2001-2002 to 2003-2004 and rate of interest etc. of the above loan have been taken as per the loan details submitted by the petitioner in the affidavits filed in the present proceedings,

(iii) Notional Loan arising out of FERV has been worked out as per para 21 above,

(iv) The repayment for the year 2001-2002 to 2003-2004 of the above notional loan has been worked out as per the following formula:

$$\frac{\text{Notional net loan at the beginning of the year} \times (\text{actual repayment of the respective foreign loan} / \text{actual net respective foreign loan at the beginning of the year})}{1}$$

(v) Rate of interest etc. of the above notional loan has been taken of the respective foreign loan from the loan details submitted by the petitioner vide its affidavits filed before the Commission.

26. On the basis of actual rate of interest on actual average loans based on information available in the petition and the loan allocation details, the weighted rate of interest on loan has been worked out and the same has been applied on the

normative average loan during the year to arrive at the interest on loan. The details of calculation of weighted average rate of interest are as given below:

Calculation of Weightage Average Rate of Interest

(Rs. in Lakh)

Details of loans	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Bond-VII									
Gross Loan -Opening	1260.00	1260.00	1260.00	1181.00	1181.00	1181.00	219.00	219.00	219.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	1260.00	1260.00	1260.00	1181.00	1181.00	1181.00	219.00	219.00	219.00
Repayment during the year	0.00	0.00	252.00	0.00	0.00	236.20	0.00	0.00	43.80
Net Loan-Closing	1260.00	1260.00	1008.00	1181.00	1181.00	944.80	219.00	219.00	175.20
Rate of Interest	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%
Interest									171.86
Corp Bank									
Gross Loan -Opening	630.00	630.00	630.00	590.00	590.00	590.00	110.00	110.00	110.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	630.00	630.00	630.00	590.00	590.00	590.00	110.00	110.00	110.00
Repayment during the year	0.00	0.00	31.50	0.00	0.00	29.50	0.00	0.00	5.50
Net Loan-Closing	630.00	630.00	598.50	590.00	590.00	560.50	110.00	110.00	104.50
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Interest									77.18
Repayment Schedule	20 Half yearly Instalments from 10.03.2004								
PNB Loan									
Gross Loan -Opening	1260.00	1260.00	1260.00	1181.00	1181.00	1181.00	219.00	219.00	219.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	1260.00	1260.00	1260.00	1181.00	1181.00	1181.00	219.00	219.00	219.00
Repayment during the year	0.00	0.00	126.00	0.00	0.00	118.10	0.00	0.00	21.90
Net Loan-Closing	1260.00	1260.00	1134.00	1181.00	1181.00	1062.90	219.00	219.00	197.10
Rate of Interest	12.01%	12.01%	12.01%	12.01%	12.01%	12.01%	12.01%	12.01%	12.01%
Interest									151.33
Repayment Schedule	10 Annual Instalments from 30.03.2004								

SBI Loan-II									
Gross Loan -Opening	977.00	977.00	977.00	915.00	915.00	915.00	170.00	170.00	170.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	977.00	977.00	977.00	915.00	915.00	915.00	170.00	170.00	170.00
Repayment during the year	0.00	0.00	162.83	0.00	0.00	152.50	0.00	0.00	28.33
Net Loan-Closing	977.00	977.00	814.17	915.00	915.00	762.50	170.00	170.00	141.67
Rate of Interest	12.07%	12.07%	12.07%	12.07%	12.07%	12.07%	12.07%	12.07%	12.07%
Interest									117.92
Repayment Schedule	6 Annual Instalments from 3.7.2003								
SBI-I / Bond XI (Option-II) (Refinancing of SBI-I from Bond XI - Option-II on 7.12.2001)									
Gross Loan -Opening	1023.00	1023.00	1023.00	958.00	958.00	958.00	178.00	178.00	178.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Loan-Opening	1023.00	1023.00	1023.00	958.00	958.00	958.00	178.00	178.00	178.00
Repayment during the year	0.00	0.00	170.50	0.00	0.00	159.67	0.00	0.00	29.67
Net Loan-Closing	1023.00	1023.00	852.50	958.00	958.00	798.33	178.00	178.00	148.33
Rate of Interest - SBI-I	12.00%			12.00%			12.00%		
Rate of Interest - Bond XI -Option-II	9.20%	9.20%	9.20%	9.20%	9.20%	9.20%	9.20%	9.20%	9.20%
Interest									113.74
Repayment Schedule	SBI-I - 7 Annual Instalments form 24.03.2003 (refinanced on 07.12.2001) / Bond XI -Option-II (6 Annual Instalments from 07.12.2003)								
Bond-VI									
Gross Loan -Opening	511.00	511.00	511.00	479.00	479.00	479.00	89.00	89.00	89.00
Cumulative Repayment upto Previous Year	0.00	0.00	51.10	0.00	0.00	47.90	0.00	0.00	8.90
Net Loan-Opening	511.00	511.00	459.90	479.00	479.00	431.10	89.00	89.00	80.10
Repayment during the year	0.00	51.10	51.10	0.00	47.90	47.90	0.00	8.90	8.90
Net Loan-Closing	511.00	459.90	408.80	479.00	431.10	383.20	89.00	80.10	71.20
Rate of Interest	13.13%	13.13%	13.13%	13.13%	13.13%	13.13%	13.13%	13.13%	13.13%
Interest									67.09
Repayment Schedule	10 Annual Instalments from 06.12.2002								
ADB-I									
Gross Loan -Opening	33384.00	33384.00	33384.00	9397.00	9397.00	9397.00	1389.92	1389.92	1389.92
Cumulative Repayment upto Previous Year	908.00	2308.95	3853.51	254.00	648.33	1083.09	38.00	96.34	160.66
Net Loan-Opening	32476.00	31075.05	29530.49	9143.00	8748.67	8313.91	1351.92	1293.58	1229.26
Repayment during the year- 1 st June	683.40	753.46	830.66	192.37	212.08	233.80	28.45	31.39	34.59
	31792.60	30321.59	28699.83	8950.63	8536.59	8080.11	1323.47	1262.19	1194.67
Repayment during the year- 1 st December	717.55	791.10	872.18	201.96	222.68	245.50	29.90	32.93	36.31

Net Loan-Closing	31075.05	29530.49	27827.65	8748.67	8313.91	7834.61	1293.58	1229.26	1158.36
Rate of Interest	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%
Interest									2448.01
Repayment Schedule	Half Yearly Instalments-01.06.2001,01.12.2001,01.06.2002,01.12.2002,01.06.2003 & 01.12.2003.								
Notional Loan-ADB-I									
Gross Loan -Opening	2237.17	2237.17	2237.17	603.35	603.35	603.35	86.96	86.96	86.96
Cumulative Repayment upto Previous Year	0.00	96.51	202.91	0.00	26.02	54.71	0.00	3.75	7.89
Net Loan-Opening	2237.17	2140.66	2034.26	603.35	577.33	548.64	86.96	83.21	79.07
Repayment during the year- 1 st June	47.08	51.90	57.22	12.69	14.00	15.43	1.83	2.02	2.23
	2190.09	2088.76	1977.04	590.66	563.34	533.21	85.13	81.19	76.85
Repayment during the year- 1 st December	49.43	54.50	60.08	13.33	14.69	16.20	1.92	2.12	2.34
Net Loan-Closing	2140.66	2034.26	1916.96	577.33	548.64	517.01	83.21	79.07	74.51
Rate of Interest	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%	7.73%
Interest									168.64
Repayment Schedule	Same as of ADB-I Loan								
Total Loan									
Gross Loan -Opening	41282.17	41282.17	41282.17	15304.35	15304.35	15304.35	2461.88	2461.88	2461.88
Cumulative Repayment upto Previous Year	908.00	2405.46	4107.51	254.00	674.35	1185.70	38.00	100.10	177.45
Net Loan-Opening	40374.17	38876.71	37174.66	15050.35	14630.00	14118.65	2423.88	2361.79	2284.44
Repayment during the year	1497.46	1702.06	2614.08	420.35	511.35	1254.80	62.10	77.35	213.56
Net Loan-Closing	38876.71	37174.66	34560.58	14630.00	14118.65	12863.85	2361.79	2284.44	2070.88
Interest	3315.76	3171.42	2986.81	1389.72	1334.93	1250.75	230.10	221.23	207.05

27. On the basis of above details, interest on loan, including notional loan has been worked out as under:

(Rs. in lakh)

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Interest on Loan									
Gross Loan - Opening	41282.17	41282.17	41282.17	15304.35	15304.35	15304.35	2461.88	2461.88	2461.88
Cumulative Repayment upto Previous Year	908.00	2405.46	4107.51	254.00	674.35	1185.70	38.00	100.10	177.45
Net Loan-Opening	40374.17	38876.71	37174.66	15050.35	14630.00	14118.65	2423.88	2361.79	2284.44
Repayment during the year	1497.46	1702.06	2614.08	420.35	511.35	1254.80	62.10	77.35	213.56
Net Loan-Closing	38876.71	37174.66	34560.58	14630.00	14118.65	12863.85	2361.79	2284.44	2070.88
Interest	3315.76	3171.42	2986.81	1389.72	1334.93	1250.75	230.10	221.23	207.05

28. Corporate Bank, PNB, SBI-II and ADB I loans carry floating rate of interest and the interest rate as submitted by the petitioner stated to be prevailing as on 1.4.2001 has been taken in the calculation. In view of the above, any change/resetting of the interest rate of the above loan during the tariff period covered in this petition would require settlement of the same mutually between the parties. In case the parties are unable to resolve the issue, any one of them may approach the Commission for appropriate decision.

29. The interest on loan allowed is as compared to that claimed by the petitioner.- The difference is due to (i) Interest on ADB-I loan- worked in foreign currency & multiplying the same with exchange rate as on 31.03.2001 in the petition against worked out in foreign currency & multiplying the same with exchange rate as on DOCO in the calculation (ii) Notional Loan - (a) division of FERV into notional loan & equity in the ratio of 50:50 in the petition against actual debt equity considered in the calculation (b) repayment- Depreciation on FERV in the petition against in proportion to repayment of ADB-I loan in the calculation (c) rate of interest- weighted average rate of interest of total outstanding loans as on 01.04.2001 in the petition against rate of interest on ADB-I loan in the calculation (iii) Difference in repayment installments of ADB-I loan in petition and as per the affidavit filed on 26.03.2003 by the petitioner.

DEPRECIATION

30. With regard to depreciation, para 4(b) of the notification dated 26.3.2001 provides:

- (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.

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.

- (iv) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.
- (v) 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.
- (vi) 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.

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

32. Based on the above provisions of the notification dated 26.3.2001, the depreciation for individual items of capital expenditure has been calculated on the capital cost for each of the assets given at para 8 above at the rates as prescribed in the notification dated 26.3.2001. While approving depreciation component of tariff, the weighted average depreciation rate has been worked out. For working out cumulative

depreciation, the depreciation as per considered by Ministry of Power for the previous tariff setting has been taken into consideration. The break up of the capital cost has been considered as per the details furnished by the petitioner. The calculations in support of depreciation allowed are appended hereinbelow:

(Rs. in lakh)

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays				400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays				315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II	
		2001-02	2002-03	2003-04		2001-02	2002-03	2003-04		2001-02	2002-03	2003-04
Rate of Depreciation	2.73%				2.92%				3.19%			
Depreciable Value	40973.25				14674.37				2338.49			
Remaining Depreciable Value		36924.37	35426.91	33724.86		13471.47	12994.70	12483.35		2170.37	2087.59	2004.81
Depreciation		1240.66	1240.66	1240.66		476.77	476.77	476.77		82.78	82.78	82.78

33. The petitioner has allocated FERV to transmission line, sub-station and PLCC only. However, in the tariff calculations, we have allocated FERV amount to all heads of gross block in proportion of their ratio to the total gross block. As a result, there is reduction of amount allowed under the head "depreciation".

ADVANCE AGAINST DEPRECIATION

34. 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:

$$\text{AAD} = \text{Originally scheduled loan repayment amount subject to a ceiling of } 1/12^{\text{th}} \text{ of original loan amount minus depreciation as per schedule.}$$

35. The petitioner has claimed Advance Against Depreciation.

36. For working out Advance Against Depreciation, 1/12th of the notional loan has been considered while repayment of loan as worked out above has been taken as repayment of the loan during the year. The petitioner is entitled to Advance Against Depreciation as calculated below:

	(Rs. in lakh)								
	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	3440.18	3440.18	3440.18	1275.36	1275.36	1275.36	205.16	205.16	205.16
Scheduled Repayment of the Loan(s)	1497.46	1702.06	2614.08	420.35	511.35	1254.80	62.10	77.35	213.56
Minimum of the above	1497.46	1702.06	2614.08	420.35	511.35	1254.80	62.10	77.35	205.16
Depreciation during the year	1240.66	1240.66	1240.66	476.77	476.77	476.77	82.78	82.78	82.78
Advance against Depreciation	256.80	461.40	1373.42	0.00	34.58	778.03	0.00	0.00	122.38

37. The Advance Against Depreciation approved by us is in excess of that claimed by the petitioner on account of the following reasons:

- (i) Division of FERV into notional loan and equity in the ratio of 50:50 in the petition against calculation of FERV in actual debt-equity ratio.
- (ii) Repayment of ADB-I loan in foreign currency multiplying with exchange rate as on 31.3.2001 in the petition against exchange rate as on DOCO applied in the calculations by us.
- (iii) Non-consideration of repayment of notional loan by the petitioner.

OPERATION & MAINTENANCE EXPENSES

38. 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:

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

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

- 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.

39. 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

40. 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.

41. 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

42. The petitioner has submitted that the increase of 160.84 % in Repair & Maintenance expenses in 1997-98 (Rs 451.01 lakh) over the previous year (Rs 172.91 lakh) is due to overhauling of circuit breaker at Bhilai and pile foundation works at Kawas and Kakrapar transmission system. Major repair is not a regular phenomenon and hence expenses on this account have to be excluded from the process of normalisation. Therefore, repair and maintenance expenses in 1997-98 have been limited to Rs 207.49 lakhs (20% over and above the repair and maintenance expenses for the year 1996-97) for the purpose of normalisation. In the next year, that is, 1998-99, the petitioner has claimed even higher Repair and Maintenance expenses (Rs 539.84 lakhs) than in 1997-98. Thus, the repair and maintenance expenses in 1998-99 are also substantially high. Hence, in this year also the increase has been limited to Rs 248.99 lakhs (20% over the expenses considered for normalisation in the previous year, 1997-98) for the purpose of normalisation. The abnormal increase of repair and maintenance expenses during 1997-98 and 1998-99 is evident from the O&M expenses of Rs. 304.10 lakh for the subsequent year, 1999-2000. However, if any major repairs are undertaken during the tariff period covered by this order, the petitioner may approach the Commission with proper justification to claim the actual expenses as a part of O&M expenses.

Power Charges

43. 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

44. 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.

45. 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.

46. 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.

47. 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 WRTS as well as Corporate Office.

Other Expenses

48. 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.

49. 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.

50. 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

51. The details of the recoveries for the WRTS 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 WRTS.

Allocation of Corporate Office Expenses to Various Regions

52. 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.

53. 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

54. 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.

55. 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.

56. 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.

57. 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).

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

Name of the Element	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)
(i)400 kV D/C Vindhyachal -Satna & Satna -Bina T/L & 400/220 kV S/S at Satna and 400 kV bays in MPEB S/S at Bina	1086	8	430.689	1086	8	456.530	1086	8	483.922
(ii)400 kV S/C Korba-Raipur Tr.Line & associated bays at Korba & Raipur,315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LLO of Korba-Bhilai Circuit-III and associated bays at Raipur	217	6	135.289	217	6	143.406	217	6	152.011
(iii)315 MVA Inter Connecting Transformer-II with associated bays & Bus Reactor at Raipur	24	1	18.726	24	1	19.849	24	1	21.040

RETURN ON EQUITY

59. 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 as considered for the previous tariff setting has been considered and additional capitalisation on account of FERV. On the above basis, the petitioner shall be entitled to return on equity each year during the tariff period as calculated below:

(Rs. in lakh)					
Name of the element	Equity as allowed by the Commission in previous tariff setting	Notional Equity arising out of FERV worked out as above	Total Equity	Rate of Return	Return on Equity
400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays	4013.69	229.97	4243.66	16%	678.99
400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays	961.06	39.44	1000.50	16%	160.08
315 MVA interconnecting Transformer II	95.00	4.82	136.44	16%	21.83
LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II	36.62				

60. The difference in return on equity claimed and that allowed is on account of the fact that the petitioner has divided FERV between debt and equity in the ratio of 50:50 whereas we have considered the amount by dividing it in the actual debt and equity ratio.

INTEREST ON WORKING CAPITAL

61. As provided in the notification dated 26.3.2001, the interest on working capital shall cover:

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

62. The petitioner has claimed maintenance spares by escalating them first and thereafter deducting $1/5^{\text{th}}$ of capitalised initial spares. In keeping with the methodology prescribed in the notification dated 26.3.2001, working capital has been worked out. In the calculation, maintenance spares for the year 2001-02 to 2003-04 have been worked out on the basis of capital expenditure up to 31.03.2001 allowed by the Commission earlier, and after deduction of $1/5^{\text{th}}$ of the initial capitalised spares therefrom; This has been escalated up to 2000-01 as per respective WPI/CPI and thereafter the same has been further escalated @ 6% per annum for the tariff period 2001-02 to 2003-04. 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 differences on account of receivables and O&M expenses between those claimed and authorised have contributed to variations in computation of Working Capital and consequently the interest thereon. 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)

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays				400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays				315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II	
		2001-02	2002-03	2003-04		2001-02	2002-03	2003-04		2001-02	2002-03	2003-04
Escalation for Maintenance Spares	6%				6%				6%			
Period in 2000-2001	1.00				1.00				1.00			
On Capital expenditures up to 31.3.2000	447.75				158.94				24.63			
On capital expenditures during the year 2000-01	0.00				0.00				0.42			
Maintenance spares	447.75				158.94				25.05			
Less 1/5 th of initial spares	44.66				15.94				0.00			
Maintenance spares	403.09	427.28	452.92	480.09	143.00	151.58	160.68	170.32	25.05	26.04	28.13	29.82
O&M expenses		35.89	38.04	40.33		11.27	11.95	12.67		1.56	1.65	1.75
Receivables		1015.49	1030.66	1159.50		370.53	368.67	482.36		60.61	59.32	77.95
Total		1,478.66	1,521.62	1,679.92		533.39	541.30	665.35		88.71	89.11	109.52
Rate of Interest		11.50%	11.50%	11.50%		11.50%	11.50%	11.50%		11.50%	11.50%	11.50%
Interest		170.05	174.99	193.19		61.34	62.25	76.52		10.20	10.25	12.59

TRANSMISSION CHARGES

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

TABLE

(Rs. in lakh)

	400 KV D/C Vindhyachal-Satna-Bina transmission line with associated bays			400 KV Korba-Raipur Transmission line, LILO of Korba-Bhilai Circuit III, 315 MVA Interconnecting Transformer-I and bus reactor, new sub-station at Raipur with associated bays			315 MVA interconnecting Transformer II		LILO of 400 KV D/C Bhilai-Chandrapur line, Circuit II
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Interest on Loan	3315.76	3171.42	2986.81	1389.72	1334.93	1250.75	230.10	221.23	207.05
Interest on Working Capital	170.05	174.99	193.19	61.34	62.25	76.52	10.20	10.25	12.59
Depreciation	1240.66	1240.66	1240.66	476.77	476.77	476.77	82.78	82.78	82.78
Advance against Depreciation	256.80	461.40	1373.42	0.00	34.58	778.03	0.00	0.00	0.00
Return on Equity	678.99	678.99	678.99	160.08	160.08	160.08	21.83	21.83	21.83
O & M Expenses	430.69	456.53	483.92	135.29	143.41	152.01	18.73	19.85	21.04
Total	6092.94	6183.98	6956.98	2223.20	2212.02	2894.16	363.64	355.94	467.67

64. 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.

65. 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.

66. 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.

67. This order disposes of Petition No.72/2002.

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(G.S. RAJAMANI)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 6th August, 2003