

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

1. **Shri Ashok Basu, Chairperson**
2. **Shri K.N.Sinha, Member**
3. **Shri Bhanu Bhushan, Member**
4. **Shri A.H. Jung, Member**

**Petition No.137/2004**

**In the matter of**

Approval of transmission charges for Ramagundam-Hyderabad transmission line-2 in Southern Region and Bhadravati (Chandrapur) HVDC back to back station (2x500MW) in Western Region and Southern Region for the period from 1.4.2004 to 31.3.2009.

**And in the matter of**

Power Grid Corporation of India Limited

**..Petitioner**

Vs

1. Madhya Pradesh State Electricity Board, Jabalpur
2. Maharashtra State Electricity Board, Mumbai
3. Gujarat Electricity Board, Baroda
4. Electricity Deptt., Government of Goa, Panaji
5. Electricity Deptt., Administration of Daman & Diu, Daman
6. Electricity Deptt., Administration of Dadra Nagar Haveli, Silvassa
7. Chhattisgarh State Electricity Board, Raipur
8. Karnataka Power Transmission Corporation Ltd., Bangalore
9. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
10. Kerala State Electricity Board, Thiruvananthapuram
11. Tamil Nadu Electricity Board, Chennai
12. Electricity Department, Govt. of Pondicherry, Pondicherry **Respondents**

**The following were present:**

1. Shri U.K. Tyagi, PGCIL
2. Shri C. Kannan, PGCIL
3. Shri P.C. Pankaj, PGCIL
4. Shri M.M. Mondal, CM (Fin), PGCIL
5. Shri Prashant Sharma, PGCIL
6. Shri R.J. Agarwal, AGM (F), PGCIL

**ORDER  
(DATE OF HEARING: 21.9.2005)**

The petition has been filed for approval for transmission charges for the 400 kV S/C Ramagundam-Hyderabad transmission line-2 in Southern Region and Bhadravati (Chandrapur) HVDC back to back station (2x500 MW) between Western Region and Southern Region for the period from 1.4.2004 to 31.3.2009, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff)

Regulations, 2004, (hereinafter referred to as “the 2004 regulations”). The petitioner has also prayed that it be permitted to continue the billing of transmission charges on the same basis as charged on 31.3.2004, pending determination of tariff in the present petition. The petitioner in its affidavit dated 18.2.2005 has prayed for reimbursement of expenditure from the beneficiaries towards publishing of notices in newspapers and filing fee.

2. Ministry of Power vide letter dated 12.11.1993 conveyed the approval of Central Government to the capital investment for setting up Chandrapur HVDC back to back station (2x500 MW) and Hyderabad-Ramagundam 400 kV S/C transmission line-2 including associated sub-station extension, by the petitioner. Ministry of Power vide its letter dated 10.1.2000 conveyed its revised sanction for expenditure at a total cost of Rs. 102859 lakh, including IDC of Rs.7694 lakh.

3. The annual transmission charges from 1.4.2001 to 31.3.2004 were decided by the Commission in its order dated 19.7.2004 in Petition No.69/2002 at a cost of Rs. 8759.02 lakh and Rs. 62082.01 lakh for 400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub-stations at Ramagundam and Hyderabad and HVDC back to back (2x500 MW) at Chandrapur respectively. The capital cost considered included FERV for the period up to 31.3.2001. The scope of work included in the transmission system and the date of commercial operation of the respective transmission line are as stated below:

S. No.	Name of the transmission line	Date of commercial operation	Line length in Ckt-km ( for O & M)
(i)	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	1.8.1997	195
(ii)	Pole I of HVDC back to back station at Chandrapur	1.10.1997	-
	Pole II of HVDC back to back station at Chandrapur	1.3.1998	-
	Total		195

4. The petitioner has claimed the transmission charges as under:

(Rs.in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	246.65	246.65	246.65	246.65	246.65	2442.29	2442.29	2442.29	2442.29	2442.29
Interest on Loan	174.49	160.25	144.92	128.43	110.70	1257.74	957.92	652.06	450.08	380.79
Return on Equity	167.49	167.49	167.49	167.49	167.49	1255.98	1255.98	1255.98	1255.98	1255.98
Advance against Depreciation	0.00	5.85	24.92	45.49	67.50	2253.29	2392.26	2632.24	0.00	0.00
Interest on Working Capital	25.02	25.71	26.66	27.66	28.73	288.26	294.79	303.51	264.68	274.52
O & M Expenses	100.51	104.52	108.81	112.99	117.67	871.72	906.75	943.02	980.53	1019.90
Total	714.15	710.46	719.45	728.70	738.74	8369.27	8249.99	8229.09	5393.56	5373.48

5. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:

(Rs.in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	116.69	123.69	131.12	138.98	147.32	1344.74	1425.42	1510.95	1601.60	1697.70
O & M expenses	8.38	8.71	9.07	9.42	9.81	72.64	75.56	78.59	81.71	84.99
Receivables	119.03	118.41	119.91	121.45	123.12	1394.88	1375.00	1371.52	898.93	895.58
Total	244.09	250.81	260.09	269.85	280.25	2812.26	2875.98	2961.05	2582.24	2678.27
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	25.02	25.71	26.66	27.66	28.73	288.26	294.79	303.51	264.68	274.52

6. The reply to the petition has been filed by Madhya Pradesh State Electricity Board, Maharashtra State Electricity Board, Karnataka Power Transmission Corporation Limited, Tamil Nadu Electricity Board and Kerala State Electricity Board. In response to the public notices published by the petitioner in accordance with the procedure specified by the Commission, no comments have been received from the general public.

## **CAPITAL COST**

7. As per clause (2) of Regulation 52 of the 2004 regulations in case of the projects existing as on 31.3.2004, the project cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

8. The petitioner has claimed the capital expenditure admitted by the Commission in the order dated 19.7.2004 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered additional capitalization on account of FERV for the period 1.4.2001 to 31.3.2004. Accordingly, the capital expenditure and FERV claimed by the petitioner for tariff purposes are given hereunder:

(Rs.in lakh)

Name of the Element	Admitted capital cost as per CERC order dated 19-07-2004 for block 2001-04	FERV for the period 1.4.2001 to 31.3.2004	Total
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	8759.02	292.05	9051.07
HVDC back to back (2x500 MW) at Chandrapur	62082.01	7024.31	69106.32
<b>Total</b>	70841.03	7316.36	78157.39

**Extra Rupee Liability during the years 2001-04:**

9. Regulation 1.13 (a) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2001 provides as under:

- (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.

10. Regulation 1.7 of the 2001 further provides that recovery of foreign exchange rate variation would be done directly by the utilities from the beneficiaries without filing a petition before the Commission. In case of any objections by the beneficiaries to the amounts claimed on these counts, they may file an appropriate petition before the Commission.

11. MPSEB, TNEB and KSEB in their reply have objected to capitalisation of FERV. We do not find the objection to be valid. FERV worked out by the petitioner is in accordance with the provisions of AS-11, applicable for the period up to 31.3.2004 and is matching with calculations submitted by the petitioner in case of Ramagundam - Hyderabad transmission line. However, in case of HVDC back-to-back station, FERV works out to Rs. 7025.39 lakh against petitioner's claim of Rs. 7024.31 lakh.

12. Based on the above, gross block as given below has been considered for the purpose of tariff for each of the element:

Name of the Element	Admitted capital cost as per CERC order dated 19-07-2004 for block 2001-04	FERV for the period 1.4.2001 to 31.3.2004	Total
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	8759.02	292.05	9051.07
HVDC back to back (2x500 MW) at Chandrapur	62082.01	7025.39	69107.40
<b>Total</b>	70841.03	7317.44	78158.47

### **DEBT- EQUITY RATIO**

13. Regulation 54 of the 2004 regulations *inter alia* provides that,-

(1) In case of the existing project, debt–equity ratio Considered by the Commission for fixation of tariff for the period ending 31.3.2004 shall be considered for determination of tariff.

- (2) In case of the transmission system for which investment approval was accorded prior to 1.4.2004 and which is likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt-equity in the ratio of 70:30 shall be considered:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

Provided further that the Commission may in appropriate case consider equity higher than 30% for the purpose of determination of tariff, where the transmission licensee is able to establish to the satisfaction of the Commission that deployment of equity more than 30% was in the interest of general public;

- (3) In case of the transmission system for which investment approval is accorded on or after 1.4.2004, debt-equity in the ratio of 70:30 shall be considered for the purpose of determination of tariff:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

- (4) The debt and equity amount arrived at in accordance with above sub-clause (1), (2) or (3), as the case may be, shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.”

14. The petitioner has claimed tariff based on debt-equity ratio as considered by the Commission in its order dated 19.7.2004 *ibid*. Based on this, the debt-equity ratio and equity claimed by the petitioner for the two assets for the purpose of determination of tariff in the present petition is indicated below:

Name of the Element	Debt-equity ratio	Equity (Rs. in lakh)
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	86.78:13.22	1157.74
HVDC back to back (2x500 MW) at Chandrapur	87.02:12.98	8058.13

15. The petitioner has not given in the petition the approved debt-equity ratio. Therefore, the entire amount of on account of FERV has been adjusted against equity in both cases in order to bring equity close to 30% of the capital cost. Therefore, debt-equity ratio and the equity considered for the purpose of tariff in each case is as under:

Name of the Element	Debt-equity ratio	Equity (Rs. in lakh)
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	83.98:16.02	1449.81
HVDC back to back (2x500 MW) at Chandrapur	78.17:21.83	15083.52

### **RETURN ON EQUITY**

16. As per clause (iii) of Regulation 56 of the 2004 regulations, return on equity shall be computed on the equity base determined in accordance with regulation 54 @ 14% per annum. Equity invested in foreign currency is to be allowed a return in the same currency and the payment on this account is made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

17. The petitioner has claimed return on the basis of equity as was admitted vide our order dated 19.7.2004 *ibid*, along with notional equity arising out of FERV as claimed by it. However, in our calculations, return on equity has been allowed on the equity given under para 15 above, and the petitioner's entitlement in each year during the tariff period is given hereunder:

Name of the Element	(Rs. in lakh)	
	Equity	Return in Equity
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	1449.81	202.97
HVDC back to back (2x500 MW) at Chandrapur	15083.52	2111.69

### **INTEREST ON LOAN**

18. Clause (i) of regulation 56 of the 2004 regulations *inter alia* provides that,-

(a) Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicated in regulation 54.

(b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per regulation 54 minus cumulative repayment as admitted by the Commission for the period up to 31.3.2004. The repayment for the period 2004-09 shall be worked out accordingly on normative basis.

(c) The transmission licensee shall make every effort to swap the loan as long as it results in net benefit to the long-term transmission customers. The costs associated with such swapping shall be borne by the long-term transmission customers.

(d) The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefits passed on to the beneficiaries.

(e) In case any moratorium period is availed of by the transmission licensee, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.

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

(i) Gross loans and cumulative loan repayment up to previous year as admitted by the Commission in petition No. 69/2002 have been taken as the Opening Balance as on 1.4.2004.

(ii) On the basis of actual rate of interest on actual average loan, the weighted average rate of interest on loan is worked out for various years.

(iii) Gross loans as admitted by the Commission in petition No. 69/2002 have been considered as notional loan and the weighted average rate of interest on loan for the respective years as per above has been multiplied with average notional loan to work out interest on loan.



(iv) Notional loan component of FERV up to 31.3.2001 as above has been considered separately and actual applicable rate of interest on Foreign Loan have been considered to workout the interest on this component.

20. In our calculation, the interest on loan has been worked out as detailed below:

- (i) Details of net outstanding loan as on 31.3.2004, repayment schedule for the period 2004-09, rate of interest as on 1.4.2004, exchange rate as on 31.3.2004 etc. have been taken from the loan allocation statement for working out weighted average rate of interest. The rate of interest of IBRD-I loan is considered as 5.80% as per loan allocation statement against 5.85% considered in the petition.
- (ii) Gross notional loan and cumulative repayment up to 31.3.2004 has been taken from the order dated 19.7.2004.
- (iii) Notional loan arising out of FERV during the years 2001-04 has been considered as per para 15 above.
- (iv) Repayment of notional loan arising due to additional capitalisation in case of HVDC back to back station (2x500 MW) during the years 2001-04 has been worked out by the following formula:

$$\frac{\text{Actual repayment of actual loan during the year}}{\text{Opening balance of actual loan during the year}} \times (\text{Op bal} + \text{Addition of normative loan during the year})$$

- (v) Tariff is worked out considering normative loan and normative repayments. Once the normative loan is arrived at, it is considered for all purposes in the tariff. Normative repayment is worked out by the following formula:

$$\frac{\text{Actual repayment of actual loan during the year}}{\text{Opening balance of actual loan during the year}} \times \text{Opening balance of normative loan during the year}$$

- (vi) Moratorium in repayment of loan is considered with reference to normative loan and if the normative repayment of loan during the year is less than the depreciation including AAD during the year, then depreciation including AAD during the year is deemed as normative repayment of loan during the year.
- (vii) Weighted average rate of interest on actual loan worked out as above is applied on the notional average loan during the year to arrive at the interest on loan.
- (viii) IBRD-I loan carries the floating rate of interest and rate of interest as applicable as on 1.4.2004 has been considered in the calculation, subject to mutual settlement between the parties in case of any change/resetting of the interest rate during the tariff period.
- (ix) WMB loan has been refinanced with Bank of Baroda loan on 13.11.2002. As the repayment schedule of both the loans is same, tariff for the period 2001-04 has not been re-worked.

21. Based on the above, the year wise details of interest worked out are given hereunder:

(Rs. in lakh)

Details of loan	400 kV S/C Ramagundam-Hyderabad transmission line -2 with extension of sub stations at Ramagundam and Hyderabad						HVDC back to back (2x500 MW) at Chandrapur					
	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan												
Gross Loan as on 1.4.2001	7601.28						54023.88					
Addition due to Additional Capitalisation	0.00						0.00					
Addition due to FERV	0.00						0.00					
Gross Loan	7601.28	7601.28	7601.28	7601.28	7601.28	7601.28	54023.88	54023.88	54023.88	54023.88	54023.88	54023.88
Cumulative		4723.18	4969.83	5216.49	5463.14	5723.20		31273.25	35180.48	39201.09	43450.97	45893.29

Repayment up to Previous Year												
Net Loan-Opening		2878.11	2631.45	2384.80	2138.14	1878.08		22750.63	18843.40	14822.80	10572.91	8130.59
Repayment during the year		246.66	246.66	246.66	260.06	279.73		3907.22	4020.61	4249.88	2442.33	2442.33
Net Loan-Closing		2631.45	2384.80	2138.14	1878.08	1598.35		18843.40	14822.80	10572.91	8130.59	5688.26
Average Loan		2754.78	2508.13	2261.47	2008.11	1738.21		20797.01	16833.10	12697.85	9351.75	6909.42
Weighted Average Rate of Interest on Loan		5.8000%	5.8000%	5.8000%	5.8000%	5.8000%		4.9867%	4.6803%	4.1972%	3.6608%	3.4203%
Interest		159.78	145.47	131.17	116.47	100.82		1037.09	787.85	532.95	342.35	236.32

## **DEPRECIATION**

22. Sub-clause (a) of clause (ii) of Regulation 56 of the 2004 regulations provides for computation of depreciation in the following manner, namely:

(i) The value base for the purpose of depreciation shall be the historical cost of the asset.

(ii) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government/Commission.

(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.

23. The calculations in support of depreciation allowed are appended below:

		(Rs.in lakh)												
		400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad						HVDC back to back (2x500 MW) at Chandrapur						
Details of Depreciation		Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09		Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
As per order dated 6.8.2003		8759.02							62082.01					
Additions during 2001-04 due to Additional Capitalisation		0.00							0.00					
Addition during 2001-04 due to FERV		292.07							7025.39					
Gross Block as on 31.3.2004		9051.09	9051.09	9051.09	9051.09	9051.09	9051.09		69107.40	69107.40	69107.40	69107.40	69107.40	69107.40
Rate of Depreciation	2.7251%							3.5341%						
Depreciable Value	90%		8145.98	8145.98	8145.98	8145.98	8145.98	90%	62145.89	62145.89	62145.89	62145.89	62145.89	62145.89
Balance Useful life of the asset			-	-	-	-	-		-	-	-	-	-	-
Remaining Depreciable Value			5384.71	5138.05	4891.40	4644.74	4384.68		34368.70	30461.48	26440.87	22190.99	19748.66	
<b>Depreciation</b>			246.66	246.66	246.66	246.66	246.66		2442.33	2442.33	2442.33	2442.33	2442.33	2442.33

### **ADVANCE AGAINST DEPRECIATION**

24. As per sub-clause (b) of clause (ii) of Regulation 56 of the 2004 regulations, in addition to allowable depreciation, the transmission licensee is entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan repayment amount as per regulation 56 (i) subject to a ceiling of 1/10th of loan amount as per regulation 54 minus depreciation as per schedule

25. It is provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year. It is further provided that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

26. In addition to Cumulative depreciation up to 2003-04 (excluding Advance Against Depreciation) as per last tariff setting, depreciation on FERV for the period

2001-04 has been added to arrive at total cumulative depreciation amount as on 31.03.2004.

27. In our calculation, the Advance Against Depreciation has been worked out as under:

- (i) 1/10th of gross loan is worked out from the gross notional loan.
- (ii) Repayment of notional loan during the year has been considered.
- (iii) Depreciation as worked out in para 23 above.
- (iv) Cumulative depreciation up to 31-03-2004 is worked out considering Cumulative Depreciation/AAD up to 2003-04 as per the tariff order dated 19.7.2004 and depreciation recovered on FERV.
- (v) Cumulative depreciation/Advance Against Depreciation upto preceding year along with the depreciation of the current year has been considered for working out the AAD.

28. The details of Advance Against Depreciation allowed for each element are given hereunder:

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad\					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Advance against Depreciation Up to 31.3.2004</b>										
1/10th of Gross Loan(s)	760.13	760.13	760.13	760.13	760.13	5402.39	5402.39	5402.39	5402.39	5402.39
Repayment of the Loan	246.66	246.66	246.66	260.06	279.73	3907.22	4020.61	4249.88	2442.33	2442.33
Minimum of the above	246.66	246.66	246.66	260.06	279.73	3907.22	4020.61	4249.88	2442.33	2442.33
Depreciation during the year	246.66	246.66	246.66	246.66	246.66	2442.33	2442.33	2442.33	2442.33	2442.33
(A) Difference	0.00	0.00	0.00	13.41	33.08	1464.90	1578.28	1807.56	0.00	0.00
Cumulative Repayment of the Loan	4969.83	5216.49	5463.14	5723.20	6002.94	35180.48	39201.09	43450.97	45893.29	48335.62
Cumulative Depreciation/ Advance against Depreciation	3007.93	3254.58	3501.24	3747.89	4007.95	30219.52	34126.74	38147.35	42397.23	44839.56
(B) Difference	1961.90	1961.90	1961.90	1975.31	1994.98	4960.96	5074.35	5303.62	3496.06	3496.06
<b>Advance against</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>13.41</b>	<b>33.08</b>	<b>1464.90</b>	<b>1578.28</b>	<b>1807.56</b>	<b>0.00</b>	<b>0.00</b>

Depreciation Minimum of (A) and (B)										
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## **OPERATION & MAINTENANCE EXPENSES**

29. In accordance with clause (iv) of Regulation 56 the 2004 regulations, the following norms are prescribed for O & M expenses

	Year				
	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses (Rs in lakh per ckt-km)	0.227	0.236	0.246	0.255	0.266
O&M expenses (Rs in lakh per bay)	28.12	29.25	30.42	31.63	32.90

30. The petitioner has claimed O & M expenses for 195 ckt- km of line length and 33 bays ( 1 at Ramagundam sub-station, 1 at Hyderabad sub-station, 14 at Pole-I, 17 at Pole-II at Chandrapur), which have been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2004-05	2005-06	2006-07	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for line length	44.27	46.02	47.97	49.73	51.87	-	-	-	-	-
O&M expenses for bays	56.24	58.50	60.84	63.26	65.80	871.72	906.75	943.02	980.53	1019.90
TOTAL	100.51	104.52	108.81	112.99	117.67	871.72	906.75	943.02	980.53	1019.90

31. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007. Therefore, according to the petitioner, O & M expenses should be subject to revision on account of revision of employee cost from that date. In the alternative, it has been prayed that the increase in employee cost due to wage revision be allowed as per actuals for extra cost to be incurred consequent to wage revision. We are not expressing any view, as this issue does not arise for consideration at this stage. The petitioner may approach for a relief in this regard at an appropriate stage in accordance with law.

## **INTEREST ON WORKING CAPITAL**

32. The components of the working capital and the interest thereon are discussed hereunder:

**(i) Maintenance spares**

Regulation 56(v) (1) (b) of the 2004 regulations provides for maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation. In the present case, element wise capital expenditure on the date of commercial operation has been considered as the historical cost and maintenance spares have been worked out accordingly by escalating 1% of the historical cost @ 6% per annum. The necessary details are given hereunder:

<b>Name of the Element</b>	<b>Date of Commercial Operation</b>	<b>Capital Expenditure (Rs. in lakh) on the date of commercial operation</b>	<b>Escalated spares Cost as on 1.4.2004 (Rs. in lakh)</b>
400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad	1.8.1997	7906.88	116.65
Pole I of HVDC back to back station at Chandrapur	1.10.1997	47738.99	697.50
Pole II of HVDC back to back station at Chandrapur	1.3.1998	45043.52	642.15

**(ii) O & M expenses**

Regulation 56(v)(1)(a) of the 2004 regulations provides for operation and maintenance expenses for one month as a component of working capital. The petitioner has claimed O&M expenses for 1 month of O&M expenses of the respective year as claimed in the petition. This has been considered in the working capital.

**(iii) Receivables**

As per Regulation 56(v)(1)(c) of the 2004 regulations, receivables will be equivalent to two months average billing calculated on target availability level.

The petitioner has claimed the receivables on the basis of 2 months' transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis of 2 months' transmission charges.

**(iv) Rate of interest on working capital**

As per Regulation 56(v) (2) of the 2004 regulations, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2004 or on 1st April of the year in which the project or part thereof (as the case may be) is declared under commercial operation, whichever is later. The interest on working capital is payable on normative basis notwithstanding that the transmission licensee has not taken working capital loan from any outside agency. The petitioner has claimed interest on working capital @ 10.25% based on SBI PLR as on 1.4.2004, which is in accordance with the 2004 regulations and has been allowed.

33. The necessary computations in support of interest on working capital are appended herein below.

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	116.65	123.65	131.06	138.93	147.26	1339.65	1420.03	1505.23	1595.54	1691.27
O & M expenses	8.38	8.71	9.07	9.42	9.81	72.64	75.56	78.59	81.71	84.99
Receivables	122.55	120.93	119.37	120.00	121.63	1368.80	1353.15	1356.49	1025.66	1016.08
Total	247.57	253.29	259.50	268.34	278.70	2781.09	2848.74	2940.30	2702.91	2792.34
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	25.38	25.96	26.60	27.51	28.57	285.06	292.00	301.38	277.05	286.22



## **TRANSMISSION CHARGES**

34. A summary sheet showing basic details of capital cost and other related aspects is annexed to this order. The transmission charges being allowed are summarized below.

(Rs.in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line with extension of sub stations at Ramagundam and Hyderabad					HVDC back to back (2x500 MW) at Chandrapur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	246.66	246.66	246.66	246.66	246.66	2442.33	2442.33	2442.33	2442.33	2442.33
Interest on Loan	159.78	145.47	131.17	116.47	100.82	1037.09	787.85	532.95	342.35	236.32
Return on Equity	202.97	202.97	202.97	202.97	202.97	2111.69	2111.69	2111.69	2111.69	2111.69
Advance against Depreciation	0.00	0.00	0.00	13.41	33.08	1464.90	1578.28	1807.56	0.00	0.00
Interest on Working Capital	25.38	25.96	26.60	27.51	28.57	285.06	292.00	301.38	277.05	286.22
O & M Expenses	100.51	104.52	108.81	112.99	117.67	871.72	906.75	943.02	980.53	1019.90
<b>Total</b>	<b>735.29</b>	<b>725.58</b>	<b>716.20</b>	<b>720.00</b>	<b>729.76</b>	<b>8212.79</b>	<b>8118.89</b>	<b>8138.93</b>	<b>6153.95</b>	<b>6096.46</b>

35. In addition to the transmission charges, the petitioner shall be entitled to other charges like income-tax, incentive, surcharge and other cess and taxes in accordance with the 2004 regulations. The charges for HVDC back to back station at Chandrapur shall be shared by the long term transmission customers of Western Region and Southern Region and charges for 400 kV S/C Ramagundam-Hyderabad transmission line with associated bays shall be borne by the long term customers of Southern Region in accordance with the 2004 regulations.

36. The petitioner by an affidavit dated 18. 2.2005 has sought approval for the reimbursement of expenditure of Rs. 2,13,610/- incurred on publication of notices in the newspapers. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in one instalment in the ratio applicable for sharing of transmission charges. The petitioner, vide affidavit dated 26-09-2005, has sought reimbursement of filing fee of Rs.5 lakh paid. A final view on reimbursement of filing fee is yet to be taken by the Commission for which views of the stakeholder have

been called for. The view taken on consideration of the comments received shall apply in the present case as regards reimbursement of filing fee.

37. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's interim directions. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

38. This order disposes of Petition No.137/2004.

sd-/  
**(A.H. JUNG)**  
**MEMBER**

sd-/  
**(BHANU BHUSHAN)**  
**MEMBER**

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

sd-/  
**(ASHOK BASU)**  
**CHAIRPERSON**

**New Delhi dated the 2<sup>nd</sup> May 2006**

## SUMMARY SHEET

<b>Name of the Element:</b>		400 kV S/C Ramagundam-Hyderabad transmission line-2 with extension of sub stations at Ramagundam and Hyderabad			HVDC back to back (2x500 MW) at Chandrapur		
Actual DOCO:		<b>1.8.1997</b>			<b>Pole-I:1.10.1997 and Pole-II 1.3.1998</b>		
Tariff setting Period:		<b>2004-09</b>			<b>2004-09</b>		
							(Rs. in lakh)
							(Rs. in lakh)
1	Capital Cost of the Project				<b>8759.02</b>		<b>62082.010</b>
2	Admitted Capital Cost as on 1.4.2004 for Calculation of Debt and Equity				<b>8759.02</b>		<b>62082.01</b>
3	Additional Capitalisation(works)				<b>0.00</b>		<b>0.00</b>
	For the year 2001-02				0.00		0.00
	For the year 2002-03				0.00		0.00
	For the year 2003-04				0.00		0.00
	Total				0.00		0.00
4	Additional Capitalisation(FERV)				<b>292.07</b>		<b>7025.39</b>
	For the year 2001-02				14.33		1258.59
	For the year 2002-03				242.28		4239.47
	For the year 2003-04				35.46		1527.33
	Total				292.07		7025.39
5	Total Capital Cost as on 01.04.2004(2+3+4)				<b>9051.092</b>		<b>69107.40</b>
6	Means of Finance :						
	Debt	83.98%			7601.28		78.17% 54023.88
	Equity	16.02%			1449.81		21.83% 15083.52
	Total	100.00%			9051.09		100.00% 69107.40
7	Gross Loan as on 01.04.2004				<b>7601.28</b>		<b>54023.88</b>
	Cumulative Repayment up to 31.3.2009 :				<b>6002.94</b>		<b>48335.62</b>
	Repaid up to 31.03.2004				4723.18		31273.25
	From 01.04.01 to 31.03.2004 (ACE & FERV)				0.00		0.00
	From 01.04.2004 to 31.03.2009				1279.76		17062.37
	Total	3732.7226			6002.94		48335.62
8	Balance Loan to be repaid beyond 31.03.2009 :				<b>1598.35</b>		<b>5688.26</b>
9	Depreciation recovered up to 31.03.09 :				<b>4041.03</b>		<b>44839.56</b>
		<b>Dep</b>	<b>AAD</b>	<b>Total</b>	<b>Dep</b>	<b>AAD</b>	<b>Total</b>
	Recovered up to 31.03.2004	2355.16	394.75	2749.91	21970.80	5443.46	27414.26
	From 01.04.01 to 31.03.2004 (ACE & FERV)	11.36	0.00	11.36	362.93	0.00	362.93
	From 01.04.2004 to 31.03.2009	1233.28	46.48	1279.76	12211.63	4850.74	17062.37
	Total			4041.03			44839.56
10	Balance Depreciation to be recovered beyond 31.03.2009 :				<b>4104.95</b>		<b>17306.34</b>
	Capital cost for the purpose of Depreciation				8759.02		62082.01
	ACE + FERV				292.07		7025.39
	Capital cost as 01.04.2004				9051.09		69107.40
	Less: Land Cost				0.00		56.41
					9051.09		69050.99
	90% of Capital Cost as above				8145.98		62145.89
	Cum. Depreciation to be recovered up to 31.03.09				4041.03		44839.56
	Balance				4104.95		17306.34