

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

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

Petition No. 117/2004

In the matter of

Approval of transmission charges for 400 kV Korba Transmission System in Western 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
- Respondents**

The following were present:

1. Shri U.K. Tyagi, PGCIL
2. Shri C. Kannan, PGCIL
3. Shri P.C. Pankaj, PGCIL
4. Shri Prasant Sharma, CM, PGCIL
5. Shri M.M. Mondal, CM (Fin), PGCIL
6. Shri D.D.Khandelwal, MPSEB
7. Shri Deepak Srivastava, MPSEB
8. Shri P.M.Mathey, MSEB

**ORDER
(DATE OF HEARING: 8.9.2005)**

The petition has been filed for approval for transmission charges for 400 kV Korba Transmission System (the transmission system) in Western 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 had 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. No other specific relief is prayed for.

2. The transmission system for evacuation of power from Korba Super Thermal Power Station in Western Region was approved by the Central Government in Ministry of Power in two stages. In the first stage, approval of the transmission system for Rs. 10090 lakh was accorded, which was subsequently revised to Rs. 10510.00 lakh. In the second stage, the transmission system was approved at Rs. 4774.00 lakh. Subsequently, the combined revised capital investment for the transmission system approved by Ministry of Power vide letter dated 1.8.1990 at an estimated cost of Rs. 24854.00 lakh.

3. The tariff for the period up to 31.3.2001 was approved by the Central Government under its notification dated 20.7.1998 which was revised by notification dated 14.5.1999 at a cost of Rs.23077.01 lakh. The annual transmission charges for the period from 1.4.2001 to 31.3.2004 were decided by the Commission in its order dated 18.7.2003 in Petition No.27/2002 at a gross block of Rs.23393.78 lakh which included FERV of Rs.316.77 lakh over the gross block of Rs.23077.01 lakh earlier considered by Ministry of Power.

4. The transmission lines included in the transmission system and the date of commercial operation of the respective transmission lines is as stated below:

S.	Name of the transmission line	Date of	Actual line
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No.		commercial operation	length in ckt km (for O&M)
	Stage-I		
(i)	Korba (NTPC)-Korba (West) (CSEB) 400 kV S/C transmission line	25.1.1983	14
(ii)	Korba-Bhilai 400 kV S/C transmission line-1	1.1.1984	197
(iii)	Korba-Bhilai 400 kV S/C transmission line-2	1.1.1984	192
(iv)	Bhilai-Koradi 400 kV S/C transmission line	1.5.1984	272
(v)	Koradi-Satpura 400 kV S/C transmission line	18.4.1987	149
(vi)	Satpura-Itrasi 400 kV S/C transmission line	13.5.1987	79
(vii)	Itarsi-Indore 400 kV S/C transmission line-2	3.12.1989	214
(viii)	Indore-Asoj 400 kV S/C transmission line-1	15.4.87	289
	Stage-II		
(i)	Korba-Bhilai 400 kV S/C transmission line-3	8.9.1990	211
(ii)	Bhilai-Bhadrawati 400 kV D/C transmission line	22.1.1990/ 28.3.1989	644
(iii)	Bhadrawati-chandrapur 400 kV D/C transmission line	28.3.1989	40
	Total		2301

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

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	359.57	359.57	359.57	359.57	359.57
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	1073.74	1073.74	1073.74	1073.74	1073.74
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	120.19	125.30	130.72	136.35	142.41
O & M Expenses	1169.09	1215.79	1265.71	1314.25	1368.77
Total	2722.59	2774.40	2829.74	2883.91	2944.49

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

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	621.41	658.70	698.22	740.11	784.52
O & M expenses	97.42	101.32	105.48	109.52	114.06
Receivables	453.76	462.40	471.62	480.65	490.75
Total	1172.59	1222.42	1275.32	1330.28	1389.33
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	120.19	125.30	130.72	136.35	142.41

7. The replies to the petition have been filed by Maharashtra State Electricity Board and Madhya Pradesh State Electricity Board.

CAPITAL COST

8. As per clause (2) of Regulation 52 of the 2004 regulations in case of the projects existing up to 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.

9. The petitioner has considered the capital expenditure of Rs.23393.78 lakh admitted by the Commission in the order dated 18.7.2003 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered additional capitalisation of Rs. 42.16 lakh on account of FERV for the period 1.4.2001 to 31.3.2004. Accordingly, gross block of Rs. 23435.94 lakh has been claimed for the purpose of tariff.

Extra Rupee Liability during the years 2001-04:

10. Regulation 1.13 (a) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2001 provided 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

11. Regulation 1.7 of the 2001 further provided 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.

12. As no objections are raised by the beneficiaries to petitioner's claim for additional capitalization on account of FERV. Also and FERV worked out is matching with calculations submitted by the petitioner. The claim has accordingly been considered for tariff calculations.

13. Based on the above, the gross book of Rs. 23435.94 lakh, including additional FERV of Rs. 42.16 lakh claimed, as on 1.4.2004 has been considered for the purpose of tariff.

DEBT- EQUITY RATIO

14. Regulation 54 of the 2004 regulations *inter alia* provides that 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. It further provides that the debt and equity amount arrived at in the above manner shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.

15. The petitioner has claimed tariff based on debt-equity of 50:50 as considered by the Central Government on the Net Fixed Asset as on 1.4.1997 and also considered by the Commission in its order dated 18.7.2003 *ibid*, Accordingly, 50% of the Net Fixed Asset of Rs.14442.00 lakh as on 1.4.1997, plus additional equity of Rs.269.13 lakh on account of additional capitalisation allowed by Ministry of Power in

its notification dated 14.5.1999 has been considered. Additional capitalization on account of FERV (Rs.316.77 lakh up to 31.3.2001 and Rs.42.16 lakh for 1.4.2001 to 31.3.2004) has been divided into debt and equity in the ratio of 50:50. Based on this, Rs.7669.60 lakh has been considered as the equity for the purpose of determination of tariff in the present petition.

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 equity of Rs. 7669.60 lakh, for the period 1.4.2004 to 31.3.2009 which has been considered. Accordingly, the petitioner shall be entitled to return on equity @ Rs. 1073.74 lakh each year during the tariff period.

INTEREST ON LOAN

18. As per clause (i) of Regulation 56 of the 2004 regulations, interest on loan capital is to be computed loan wise on the loans arrived at in the manner indicated in regulation 54. Further, the loan outstanding as on 1.4.2004 is worked out as the gross loan as per regulation 54 minus cumulative repayment as admitted by the Commission up to 31.3.2004. The repayment for the period 2004-09 needs to be worked out on normative basis.

19. The petitioner has not claimed any interest on loan as the entire loan was repaid during 2002-03. Accordingly, the petitioner is not entitled to interest on loan.

DEPRECIATION

20. 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.

21. Land cost included in the historical cost of the asset is Rs. 111.73 lakh. Thus, the gross depreciable value of the asset, as per (ii) above, is $0.9 \times (\text{Rs.}23435.95 \text{ lakh} - \text{Rs.} 111.73 \text{ lakh}) = \text{Rs.}20991.79 \text{ lakh}$. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs.14878.95 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 6112.85 lakh.

22. As the entire loan for the transmission assets covered in the present petition has already been repaid, the depreciation has been worked out by spreading the balance depreciable value over the remaining useful life of the asset (17 years) as on 1.4.2004 and it comes to Rs. 359.58 lakh per year.

23. The petitioner has already recovered depreciation of Rs. 2.72 lakh from the beneficiaries on account of impact of FERV for the period 1.4.2001 to 31.2.2004. However, as per our computations such impact is Rs. 2.48 lakh. The difference of Rs. 0.24 lakh in depreciation claimed from beneficiaries against FERV for the period 2001-04 and as per our calculations (Rs. 2.72 lakh- Rs. 2.48 lakh) shall be adjusted mutually by the petitioner with the beneficiaries.

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. The petitioner has not claimed Advance Against Depreciation. The petitioner's entitlement to Advance Against Depreciation is, therefore, zero.

OPERATION & MAINTENANCE EXPENSES

27. 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

28. The petitioner has claimed O & M expenses for 2301 ckt km of line length and 23 bays (2 at Indore, 6 at Bhilai, 2 at Koradi, 2 at Itarsi , 2 at Satpura , 1 at Asoj , 2 at Chandrapur and 6 at Bhardrawati), which has been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

	Year				
	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for line length	522.33	543.04	566.05	586.76	612.07
O&M expenses for bays	646.76	672.75	699.66	727.49	756.70
Total	1169.09	1215.79	1265.71	1314.25	1368.77

29. 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

30. 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 not been made available by the petitioner. The earliest available capital expenditure of Rs. 22171.00 lakh as on 1.4.1992 has been considered as the historical cost for the purpose of the present petition and maintenance spares have been worked out accordingly by escalating 1% of the historical cost @ 6% per annum. The value of maintenance spares as on 1.4.2004 works out to Rs. 446.12 lakh.

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

31. The necessary computations in support of interest on working capital are appended hereinbelow.

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	446.12	472.89	501.27	531.34	563.22
O & M expenses	97.42	101.32	105.48	109.52	114.06
Receivables	450.72	459.17	468.20	477.03	486.90
Total	994.27	1033.38	1074.94	1117.89	1164.19
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	101.91	105.92	110.18	114.58	119.33

TRANSMISSION CHARGES

32. A summary sheet showing basic details of capital cost and other related aspects is annexed to this order. The transmission charges being allowed for the transmission system are summarised below:

(Rs. In lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	359.58	359.58	359.58	359.58	359.58

Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	1073.74	1073.74	1073.74	1073.74	1073.74
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	101.91	105.92	110.18	114.58	119.33
O & M Expenses	1169.09	1215.79	1265.71	1314.25	1368.77
Total	2704.33	2755.03	2809.21	2862.16	2921.42

33. 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. These transmission charges shall be included in the regional transmission tariff for Western Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

34. 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.

35. This order disposes of Petition No.117/2004.

Sd-/
(A.H.JUNG)
MEMBER

sd-/
(BHANU BHUSHAN)
MEMBER

sd-/
(ASHOK BASU)
CHAIRPERSON

New Delhi dated the 15th December 2005

SUMMARY SHEET

Name of the Company	PGCIL
Name of the Scheme	400 kV Korba Transmission System in Western Region
Date of Commercial Operation	Between January 1983 to February 1990
Tariff setting period	2004-09

Petition No.		117/2004				Rs.in lacs	
1	Capital Cost of the Project					23393.78	
		Cumulative depreciation recovered as on 31.03.97				8096.75	
2	Admitted Capital Cost as on 01.04.2004 for Calculation of Debt and Equity					15297.03	
3	Additional Capitalisation(works)					0.00	
		For the year 2001-02			0.00		
		For the year 2002-03			0.00		
		For the year 2003-04			0.00		
		Total			0.00		
4	Additional Capitalisation(FERV)					42.16	
		For the year 2001-02			-6.50		
		For the year 2002-03			48.66		
		For the year 2003-04			0.00		
		Total			42.16		
5	Total Capital Cost as on 01.04.2004(2+3+4)					15339.20	
6	Means of Finance¹ :						
		Debt	50.00%			7669.60	
		Equity	50.00%			7669.60	
		Total	100.00%			15339.20	
7	Debt details-Entire notional debt stands paid as on 01.04.2004					-	
8	Weighted Av. Rate of interest-Not applicable						
9	Depreciation recovered up to 31.03.09 :					16676.85	
			Dep	AAD	Total		
		Recovered up to 31.03.2001	13238.31	0.00	13238.31		
		From 01.04.01 to 31.04.2004	1626.43	14.21	1640.64		
		From 01.04.2004 to 31.03.2009	1797.90	0.00	1797.90		
		Total			16676.85		
10	Balance Depreciation to be recovered beyond 31.03.2009 :					4314.95	
		Capital cost for the purpose of Depreciation²				23393.78	
		ACE + FERV				42.16	
		Capital cost as 01.04.2004				23435.95	
		Less: Land Cost				111.73	
						23324.22	
		90% of Capital Cost as above				20991.79	
		Cum. Depreciation to be recovered upto 31.03.09				16676.85	
		Balance				4314.95	
1	Debt and Equity are notional and not actual as per division of debt & equity taken by GOI as 50:50 and the same has been accepted by the Commission.						
2	The tariff was set by GOI for the period up to 31.03.1997 NFA on basis .The Gross Block as on 01.04.1997 was Rs.23077.01 lacs only .Cumulative depreciation recovered up to 31.03.1997 amounting to Rs 8096.75 lacs was deducted to arrive at NFA as on 31.03.1997 amounting to Rs.14980.26 lacs Addl. Capitalisation due to FERV amounting Rs.316.77 lacs and Rs.42.16 lacs for the period prior to 1.4.2001 and 2001-04 respectively has been added to arrive at capital cost as on 1.04.2004 which works out to Rs. 15339.19 lacs						