

**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. 127/2004**

**In the matter of**

Approval of transmission charges for 400 kV Kahalgaon Transmission System in Eastern 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. Bihar State Electricity Board, Patna
2. West Bengal State Electricity Board, Calcutta
3. Grid Corporation of Orissa Ltd., Bhubaneswar
4. Damodar Valley Corporation, Calcutta
5. Power Deptt., Govt. of Sikkim, Gangtok
6. Jharkhand State Electricity Board, Ranchi.... **Respondents**

**The following were present:**

1. Shri U.K. Tyagi, PGCIL
2. Shri C. Kannan, PGCIL
3. Shri P.C. Pankaj, PGCIL
4. Shri R.T.Agrawal, PGCIL
5. Shri Sunil Agrawal, PGCIL
6. Shri M.M. Mondal, CM (Fin), PGCIL

**ORDER  
(DATE OF HEARING: 4.8.2005)**

The petition has been filed for approval for transmission charges for the 400 kV Kahalgaon Transmission System (the transmission system) in Eastern 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 revised cost estimates for the transmission system were approved by the Central Government in Ministry of Power under letters dated 1.6.1992 and 7.9.1992 at a total cost of Rs. 22375.00 lakh.

3. The tariff for the period up to 31.3.2001 was approved by the Central Government under notification dated 4.12.1998 which was revised by notification dated 11.5.1999 at a cost of Rs. 19447.00 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 17.2.2004 in Petition No. 25/2002 at a gross block of Rs. 19610.11 lakh including additional capitalization from 1997 to 2001 on account of FERV of Rs. 163.11 lakh over the gross block of Rs. 19447.00 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. No.	Name of the transmission line	Date of commercial operation	Actual line length in ckt km (for O & M)
(i)	400 kV D/C Maithon-Jamshedpur transmission line ckt I	1.6.1994	153
(ii)	400 kV S/C Jamshedpur-Rourkela transmission line	1.1.1994	174
(iii)	400 kV D/C Maithon-Jamshedpur transmission line ckt II	1.1.1994	153
(iv)	400 kV D/C Kahalgaon-Maithon transmission line ckt I	1.10.1994	172
(v)	400 kV D/C Kahalgaon-Maithon transmission line ckt II	1. 3.1993	172
	<b>Total</b>		<b>824</b>

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

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	341.90	341.90	341.90	341.90	341.90
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	1133.76	1133.76	1133.76	1133.76	1133.76
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	78.14	80.98	83.98	87.11	90.46
O & M Expenses	608.85	633.21	659.00	684.57	712.68
<b>Total</b>	<b>2162.65</b>	<b>2189.85</b>	<b>2218.64</b>	<b>2247.34</b>	<b>2278.80</b>

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	351.19	372.26	394.60	418.27	443.37
O & M expenses	50.74	52.77	54.92	57.05	59.39
Receivables	360.44	364.98	369.77	374.56	379.80
Total	762.37	790.01	819.28	849.88	882.56
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	78.14	80.98	83.98	87.11	90.46

7. The respondents have not filed any reply to the petition. Neither has any objection been received in response to the public notices published by the petitioner.

### **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.19610.11 lakh admitted by the Commission in the order dated 17.2.2004 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered additional capitalisation of Rs. 56.44 lakh on account of FERV for the period 1.4.2001 to 31.3.2004. Accordingly, gross block of Rs. 19666.55 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 the petitioner's claim for additional capitalization on account of FERV and also, 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, gross block of Rs. 19666.55 lakh, including additional FERV of Rs. 56.44 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 17.2.2004 *ibid*. Accordingly, the Net Fixed Asset of Rs. 16140.12 lakh as on 1.4.1997 after adjusting cumulative depreciation of Rs. 3470.00 lakh up to 31.3.1997 has been considered. Additional capitalization on account of FERV (Rs. 56.44 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.8098.28 lakh has been considered as the equity for the purpose of determination of tariff in the present petition. As the entire loan was repaid prior to 1.4.2004, interest on loan has not been allowed on FERV portion of the debt.

### **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. 8098.28 lakh, after adjustment of amount of FERV from 1.4.2001 to 31.3.2004, which has been considered. Accordingly, the petitioner shall be entitled to return on equity @ Rs. 1133.76 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 capital cost of the asset is Rs. 267.22 lakh. Thus, the gross depreciable value of the asset, as per (ii) above, is  $0.9 \times (\text{Rs.}19666.55 \text{ lakh} - \text{Rs.} 267.22 \text{ lakh}) = \text{Rs.}17458.71 \text{ lakh}$ . Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs.9936.62 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 7522.09 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 (22 years) as on 1.4.2004 and it comes to Rs. 341.91 lakh per year.

### **ADVANCE AGAINST DEPRECIATION**

23. 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.

24. 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.

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

### **OPERATION & MAINTENANCE EXPENSES**

26. 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

27. The petitioner has claimed O & M expenses for 824 ckt km of line length and 15 bays (1 at Biharshariff sub-station, 6 at Maithon sub-station, 5 at Jamshedpur sub-station, and 3 at Rourekela sub-station), which has been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

(Rs. in lakh)

	Year				
	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for line length	187.05	194.46	202.70	210.12	219.18
O&M expenses for bays	421.80	438.75	456.30	474.45	493.50
<b>Total</b>	<b>608.85</b>	<b>633.21</b>	<b>659.00</b>	<b>684.57</b>	<b>712.68</b>

28. 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**

29. 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 is hereunder, which 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. 354.10 lakh.

S.No.	Name of the elements	Capital expenditure (Rs. In crore) on date of commercial operation	Date of Commercial operation	Escalated cost of maintenance spares (Rs. in lakh as on 1.4.2004)
(i)	400 kV D/C Maithon-Jamshedpur-II transmission line	46.18	1.1.1994	83.94
(ii)	400 kV S/C Jamshedpur-Rourkela transmission line	62.13	1.1.1994	112.93
(iii)	400 kV D/C Maithon-Jamshedpur-I transmission line	28.90	1.6.1994	51.27
(iv)	400 kV D/C Kahalgaon-Maithon-I transmission line	19.58	1.10.1994	34.07
(v)	400 kV D/C Kahalgaon-Maithon-II transmission line	37.68	1.3.1993	71.89
	<b>Total</b>			<b>354.10</b>

**(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.

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

(Rs. in lakh)

	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
Maintenance Spares	354.10	375.35	397.87	421.74	447.04
O & M expenses	50.74	52.77	54.92	57.05	59.39
Receivables	360.49	365.03	369.83	374.62	379.87
Total	765.33	793.14	822.62	853.41	886.30
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%

<b>Interest</b>	78.45	81.30	84.32	87.47	90.85
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### **TRANSMISSION CHARGES**

31. 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)				
	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
Depreciation	341.91	341.91	341.91	341.91	341.91
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	1133.76	1133.76	1133.76	1133.76	1133.76
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	78.45	81.30	84.32	87.47	90.85
O & M Expenses	608.85	633.21	659.00	684.57	712.68
<b>Total</b>	<b>2162.97</b>	<b>2190.18</b>	<b>2218.99</b>	<b>2247.72</b>	<b>2279.20</b>

32. 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 Eastern Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

33. 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.

34. This order disposes of Petition No.127/2004.

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

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

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

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

**New Delhi dated the 14th December 2005**

### Summary Sheet

<b>Name of the Company</b>		PGCIL			
<b>Name of the Scheme</b>		400 k V Kahalgaon Transmission System in Southern Region			
<b>Date of Commercial Operation</b>		Between 21.04.91 to 01.04.92			
<b>Tariff setting Period</b>		2004-09			
<b>Petition No.</b>		127/2004			
					<b>Rs.in lakh</b>
<b>1</b>	<b>Capital Cost of the Project</b>				<b>19610.11</b>
		<b>Cumulative depreciation recovered as on 31.03.97</b>			<b>3470.00</b>
<b>2</b>	<b>Admitted Capital Cost as on 01.04.2004 for Calculation of Debt and Equity</b>				<b>16140.11</b>
<b>3</b>	<b>Additional Capitalisation (works)</b>				<b>0.00</b>
		For the year 2001-02		0.00	
		For the year 2002-03		0.00	
		For the year 2003-04		0.00	
		<b>Total</b>		<b>0.00</b>	
<b>4</b>	<b>Additional Capitalisation (FERV)</b>				<b>56.44</b>
		For the year 2001-02		-8.70	
		For the year 2002-03		65.15	
		For the year 2003-04		0.00	
		<b>Total</b>		<b>56.44</b>	
<b>5</b>	<b>Total Capital Cost as on 01.04.2004(2+3+4)</b>				<b>16196.56</b>
<b>6</b>	<b>Means of Finance<sup>1</sup>:</b>				
		Debt	50.00%	8098.28	
		Equity	50.00%	8098.28	
		<b>Total</b>	<b>100.00%</b>	<b>16196.56</b>	
<b>7</b>	<b>Debt details-Entire notional debt stands paid as on 01.04.2004</b>				<b>-</b>
<b>8</b>	<b>Weighted Av. Rate of interest-Not applicable</b>				
<b>9</b>	<b>Depreciation recovered up to 31.03.09 :</b>				<b>11646.18</b>
			<b>Dep</b>	<b>AAD</b>	<b>Total</b>
		Recovered up to 31.03.2001	8238.16	0.00	8238.16
		From 01.04.01 to 31.04.2004	1497.20	201.25	1698.45
		From 01.04.2004 to 31.03.2009	1709.57	0.00	1709.57
		<b>Total</b>			<b>11646.18</b>
<b>10</b>	<b>Balance Depreciation to be recovered beyond 31.03.2009:</b>				<b>5812.53</b>
		<b>Capital cost for the purpose of Depreciation<sup>2</sup></b>			<b>19610.11</b>

	<b>ACE + FERV</b>	<b>56.44</b>
	<b>Capital cost as 01.04.2004</b>	<b>19666.56</b>
	<b>Less: Land Cost</b>	<b>267.99</b>
		<b>19398.57</b>
	<b>90% of Capital Cost as above</b>	<b>17458.71</b>
	<b>Cum. Depreciation to be recovered upto 31.03.09</b>	<b>11646.18</b>
	<b>Balance</b>	<b>5812.53</b>
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 on NFA basis .The Gross Block, as on 01.04.1997 was Rs.19447.00 lakh only. Cumulative depreciation recovered up to 31.03.1997 amounting to Rs.3470.00 lakh was deducted to arrive at NFA as on 31.03.1997 amounting to Rs.15977.00 lakh. Additional Capitalisation due to FERV amounting Rs.163.11 lakh and Rs.56.44 lakh for the period up 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. 19666.56 lakh	