

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

- 1. Shri Ashok Basu, Chairperson**
- 2. Shri K.N.Sinha, Member**
- 3. Shri Bhanu Bhushan, Member**

**Petition No. 113/2004**

**In the matter of**

Approval of transmission charges for 400 kV D/C Singrauli-Vindhyachal Transmission line with (2x250 MW) HVDC back to back at Vindhyachal between Northern Region and 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
8. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
9. Ajmer Vidyut Prasdaran Nigam Ltd, Ajmer
10. Jaipur Vidyut Vitran Nigam Ltd., Jaipur
11. Jodhpur Vidyut Vitran Nigam Ltd., Jodhpur
12. Himachal Pradesh State Electricity Board, Shimla
13. Punjab State Electricity Board, Patiala
14. Haryana Vidyut Prasaran Nigam Ltd. Panchchkula
15. Power Development Deptt., Govt. of J&K, Jammu
16. Uttar Pradesh Power Corporation Ltd, Lucknow
17. Delhi Transco Ltd., New Delhi
18. Chandigarh Administration, Chandigarh
19. Uttranchal Power Corporation Ltd., Dehradun
20. Chief Electrical Distribution Engineer, Northern Railway, New Delhi

**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.Matiey, MSEB
9. Shri S.B.Khailya, GM, GUVNL
10. Shri Kamlesh Kumar Jangid, GUVNL
11. Shri A.K.Tandon, UPPCL

12. Shri S.N.Joshi, JdVVNL
13. Shri R.K.Arora, HPGCL

**ORDER**  
**(DATE OF HEARING: 7.9.2005)**

The petition has been filed for approval for transmission charges for 400 kV D/C Singrauli-Vindhyachal Transmission Line with (2x250 MW) HVDC back to back at Vindhyachal (the transmission system) shared between Northern Region and 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 revised cost estimates for the transmission system were approved by the Central Government in Ministry of Power under letter dated 16.6.1993 at a total cost of Rs. 19322.00 lakh. The date of commercial operation of the transmission system is 6.6.1989.

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 notifications dated 16.11.1998 and 14.5.1999 at a cost of Rs. 16625.73 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 17.7.2003 in Petition No.15/2002 at a gross block of Rs. 17584.90 lakh including additional capitalization from 1997 to 2001 on account of FERV of Rs. 959.17 lakh over the gross block of Rs. 16625.73 lakh earlier considered by Ministry of Power.

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

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	273.29	273.29	273.29	273.29	273.29
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	785.40	785.40	785.40	785.40	785.40
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	76.83	80.00	83.35	86.88	90.61
O & M Expenses	647.52	673.54	700.48	728.34	757.59
<b>Total</b>	<b>1783.04</b>	<b>1812.23</b>	<b>1842.52</b>	<b>1873.91</b>	<b>1906.89</b>

5. 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	398.45	422.35	447.69	474.55	503.03
O & M expenses	53.96	56.13	58.37	60.70	63.13
Receivables	297.17	302.04	307.09	312.32	317.82
Total	749.58	780.52	813.15	847.57	883.98
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	76.83	80.00	83.35	86.88	90.61

6. The replies to the petition have been filed by Ajmer Vidyut Vitran Nigam Ltd.,Jairpur Vidyut Vitran Nigam Ltd., Jodhpur Vidyut Vitran Nigam Ltd., Punjab State Electricity Board, Madhya Pradesh State Electricity Board and Maharashtra State Electricity Board .

### **CAPITAL COST**

7. 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.

8. The petitioner has considered the capital expenditure of Rs.17584.90 lakh admitted by the Commission in the order dated 17.7.2003 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered additional capitalisation of Rs. 127.67 lakh on account of FERV for the period 1.4.2001 to

31.3.2004. Accordingly, gross block of Rs. 17712.57 lakh has been claimed for the purpose of tariff.

**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 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

10. 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.

11. MPSEB in its reply has objected to capitalization of FERV. We do not find the objection to be valid. FERV worked out by the petitioner is matching with calculations submitted by the petitioner and is in accordance with the provisions of AS-11,

applicable for the period up to 31.3.2004. The claim has accordingly been considered for tariff calculations.

12. Based on the above, gross block of Rs. 17712.57 lakh, including additional FERV of Rs. 127.67 lakh claimed, as on 1.4.2004 has been considered for the purpose of tariff:

### **DEBT- EQUITY RATIO**

13. 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.

14. 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*. MPSEB has stated that debt-equity should be considered in the ratio of 70:30 in accordance with the draft tariff policy of the Central Government. We are not inclined to accept the argument for the reason that tariff policy has not yet been notified by the Central Government and is at the deliberation stage. Accordingly, the Net Fixed Asset of Rs. 10133.20 lakh as on 1.4.1997 after adjusting cumulative depreciation of Rs. 6492.53 lakh up to 31.3.1997 has been considered. Additional capitalization on account of FERV after 1.4.1997 has been divided into debt and equity in the ratio of 50:50. Based on this, Rs.5610.02 lakh has been considered as the equity for the purpose of determination of tariff in the present petition. As the loan had been repaid prior to 1.4.2004, the benefit of loan portion of FERV is not available to the petitioner.

## **RETURN ON EQUITY**

15. 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.

16. The petitioner has claimed return on equity of Rs. 5610.02 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. 785.40 lakh each year during the tariff period.

## **INTEREST ON LOAN**

17. 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.

18. 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**

19. 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.

20. The gross depreciable value of the asset, as per (ii) above, is  $0.9 \times$  (Rs.17712.57 lakh) = Rs.15941.31 lakh. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs.13207.21 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 2734.10 lakh.

21. 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 (10 years) as on 1.4.2004 and it comes to Rs. 273.41 lakh per year.

22. The petitioner has already claimed depreciation of difference in depreciation claimed from beneficiaries against FERV for the period 2001-04 and as per our calculations shall be adjusted mutually by the petitioner with the beneficiaries.

### **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 3.34-ckt km of line length and 23 bays (all at Vindhyachal HVDC 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	0.76	0.79	0.82	0.85	0.89
O&M expenses for bays	646.76	672.75	699.66	727.49	756.70
<b>Total</b>	<b>647.52</b>	<b>673.54</b>	<b>700.48</b>	<b>728.34</b>	<b>757.59</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 has not been made available by the petitioner. The earliest available capital expenditure of Rs. 16206.00 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. 326.10 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.

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	326.10	345.66	366.40	388.39	411.69
O & M expenses	53.96	56.13	58.37	60.70	63.13
Receivables	295.94	300.73	305.69	310.84	316.25

Total	675.99	702.52	730.47	759.92	791.07
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
<b>Interest</b>	69.29	72.01	74.87	77.89	81.08

### **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	273.41	273.41	273.41	273.41	273.41
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	785.40	785.40	785.40	785.40	785.40
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	69.29	72.01	74.87	77.89	81.08
O & M Expenses	647.52	673.54	700.48	728.34	757.59
<b>Total</b>	<b>1775.62</b>	<b>1804.36</b>	<b>1834.17</b>	<b>1865.05</b>	<b>1897.49</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 Northern Region and Western 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.113/2004.

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

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

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

**New Delhi dated the 15<sup>th</sup> December 2005**

### **SUMMARY SHEET**

<b>A</b>	Name of the Company:	PGCIL
<b>B</b>	Name of the Element:	400 kV D/C Singrauli-Vindhyachal Transmission line with HVDC back to back at Vindhyachal in Northern and Western Region

	Date of commercial operation	6.6.1989		
C	Tariff setting period	2004-09		
D	Petition No.:	113/2004		
				Rs. in lakh
1	Capital Cost of the Project as on 31.3.1997	16625.73		
2	Less: Cumulative Depreciation recovered as on 31.03.97	6492.53		
	<u>NFA as on 31.3.1997</u>	10133.20		
	Add: FERV from 1.4.1997 to 31.3.2001	959.17		
3	Admitted Capital Cost as on 1.4.2004 for Calculation of Debt and Equity	11092.37		
4	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		
5	Additional Capitalisation (FERV)	127.67		
	For the year 2001-02	-19.68		
	For the year 2002-03	147.35		
	For the year 2003-04	0.00		
	Total	127.67		
5	Total Capital Cost as on 1.4.2004(2+3+4)	11220.04		
6	Means of Finance <sup>1</sup> :			
	Debt	50.00%	5610.028	
	Equity	50.00%	5610.02	
	Total	100.00%	11220.04	
7	Debt details-Entire notional debt stands paid as on 1.4.1004			
8	Weighted Av. Rate of interest –Not applicable			
9	Depreciation recovered up to 31.3.09:	14574.26		
		Dep	AAD	Total
	Recovered up to 31.3.2001	11637.11	0.00	11673.11
	From 01.04.01 to 31.4.2004	1534.10	0.00	1534.10
	From 01.04.2004 to 31.3.2009	1367.05	0.00	1367.05
	Total			14574.26
12	Balance Depreciation to be recovered beyond 31.3.2009:	1367.05		
	Capital cost for the purpose of Depreciation <sup>2</sup>	1125.73		
	ACE+FERV for 1.4.1997 to 31.3.2001	959.1		
	ACE+ FERV for 1.4.2001 to 31.3.2004	127.67		
	Capital cost as on 1.4.2004	17712.57		
	Less: Land cost	0.00		
		17712.57		
	90% of Capital Cost as above	15941.31		
	Cum. Depreciation to be recovered up to 31.3.09	14574.26		
	Balance	1367.05		
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.16625.73 lakh only .Cumulative depreciation recovered up to 31.03.1997 amounting to Rs6492.53 lakh was deducted to arrive at NFA as on 31.03.1997 amounting to Rs.10133.20 lakh. FERV amounting to Rs.959.17 lakh and Rs. 127.67 lakh for the period prior to 1.4.2001 and 2001-04 has been added to arrive at capital cost as on 1.04.2004 which works out to Rs.11220.04 lakh.			