

**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.73/2004**

**In the matter of**

Approval of transmission charges for Vindhyachal Stage-II 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
9. Shri Kamlesh Kumar Jangia, GUVNL
10. Shri S.B.Khailya, GUVNL

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

The petition has been filed for approval for transmission charges for the Vindhyachal Stage-II 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. Ministry of Power vide its letter dated 6.10.1995 had approved implementation of the transmission system in Western Region at an estimated cost of Rs. 65771.00 lakh, including IDC of Rs. 11029.00 lakh. Though subsequently Ministry of Power vide its letter dated 17.11.1995 made certain modifications in the scope of work and in a meeting with respondents held on 29.6.1996 again some more modifications in scope of work were agreed to, there was no change in the estimated cost.

3. The annual transmission charges from 1.4.2001 to 31.3.2004 were decided by the Commission in its order dated 6.8.2003 in petition No.72/2002 at a total cost of Rs. 64429.01 lakh. The date of commercial operation of the respective transmission asset which form the subject matter of the present petition and the line length 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 D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	1.8.1999	1086
(ii)	400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Interconnecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	1.1.2000	217
(iii)	315 MVA Interconnecting Transformer-II with associated bays & Bus Reactor at Raipur	1.4.2000	24
(iv)	LILO of Bhilai-Chandrapur transmission line Circuit-II and associated bays at Raipur		
	Total		1327

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

(Rs.in lakh)

	400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	1197.64	1197.64	1197.64	1197.64	1197.64	463.84	463.84	463.84	463.84	463.84	80.70	80.70	80.70	80.70	80.70
Interest on Loan	2513.00	2307.76	2090.34	1859.46	1630.94	995.57	881.40	763.82	642.48	533.09	162.74	142.81	122.39	101.43	82.83
Return on Equity	573.51	573.51	573.51	573.51	573.51	136.27	136.27	136.27	136.27	136.27	18.62	18.62	18.62	18.62	18.62
Advance against Depreciation	47.77	1289.68	1459.90	1647.85	1602.89	528.15	775.41	823.32	875.68	697.59	98.18	131.69	138.34	146.33	110.98
Interest on Working Capital	146.53	168.57	172.03	175.76	175.80	63.52	67.32	67.68	68.13	64.89	10.43	10.90	10.91	10.94	10.28
O & M Expenses	471.48	490.30	510.52	529.97	552.08	217.98	226.71	235.90	245.12	255.12	33.57	34.91	36.32	37.75	39.28
Total	4949.93	6027.46	6003.94	5984.19	5732.86	2405.33	2550.95	2490.83	2431.52	2150.80	404.25	419.64	407.29	395.78	342.70

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 D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	565.27	599.19	635.14	673.25	713.64	200.66	212.70	225.46	238.99	253.33	31.63	33.53	35.54	37.67	39.93
O & M expenses	39.29	40.86	42.54	44.16	46.01	18.17	18.89	19.66	20.43	21.26	2.80	2.91	3.03	3.15	3.27
Receivables	824.99	1004.58	1000.66	997.37	955.48	400.89	425.16	415.14	405.25	358.47	67.37	69.94	67.88	65.96	57.12
Total	1429.55	1644.63	1678.34	1714.78	1715.12	619.71	656.75	660.26	664.67	633.06	101.80	106.38	106.45	106.78	100.32
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	146.53	168.57	172.03	175.76	175.80	63.52	67.32	67.68	68.13	64.89	10.43	10.90	10.91	10.94	10.28

6. The replies to the petition have been filed by Maharashtra State Electricity Board and Madhya Pradesh State Electricity Board. No comments or suggestion have been received from the general public in response to the notices published by the petitioner under section 64 of the Electricity Act, 2003.

## **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 admitted by the Commission in the order dated 18.5.2004 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered de-capitalisation on account of FERV. The capital expenditure and FERV considered by the petitioner for tariff purpose are given hereunder:

(Rs.in lakh)

<b>Name of the Element</b>	<b>Admitted capital cost (including FERV)</b>	<b>FERV for the period 1.4.2001 to 31.3.2004</b>	<b>Capital expenditure</b>
400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	45525.83	(-)1578.60	43947.23
400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	16304.86	(-)442.11	15862.75
315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	2598.32	(-)65.21	2533.11
<b>Total</b>	64429.01	(-)2085.92	62343.09

### **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. FERV worked out by the petitioner is matching with calculations submitted by it and is in accordance with the provision of AS-11, applicable for the period up to 31.3.2004 and is for the benefit of the respondents. The claim for de-capitalization has accordingly been considered for tariff calculations.

12. Based on the above, gross block as claimed by the petitioner as per para 8 above has been considered for the purpose of tariff for each of the element.

### **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 6.8.2003 *ibid*. Based on this, the debt-equity ratio considered by the petitioner for different assets for the purpose of determination of tariff in the present petition is indicated below:

(Rs.in lakh)

Name of the Element	Debt-equity ratio	Equity
400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	90.68:9.32	4096.53
400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	93.86:6.14	973.35
<u>315 MVA Inter connecting transformer-II with associated bays &amp; Bus Reactor at Raipur</u> LILo of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	94.75:5.25	138.02

15. The petitioner has stated in the petition that the approved debt-equity ratio for the transmission system is 75:25. Therefore, in order to bring debt and equity as close to the approved debt-equity ratio as possible, the decapitalization of account of FERV has been treated to have been financed from loan. Therefore, equity considered in the order dated 6.8.2003 for the purpose of tariff in each case is as under:

(Rs. in lakh)

Name of the Element	Equity
400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	4243.66
400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILo of Korba-Bhilai Circuit-III and associated bays at Raipur	1000.50
<u>315 MVA Inter connecting Transformer-II with associated bays &amp; Bus Reactor at Raipur</u> LILo of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	136.44

### **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 previous tariff setting along with notional reduction in equity on account of FERV. The methodology followed by us for working out the equity has been narrated by us para 15 hereinabove. Thus, the return on equity each year during the tariff period is given hereunder:

(Rs. in lakh)		
Name of the Element	equity	Return on Equity
400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	4243.66	594.11
400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	1000.50	140.07
315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	136.44	19.10

### **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, cumulative loan repayment and outstanding balance up to previous year as admitted by the Commission in petition No. 72/2002 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) Loans as admitted by the Commission in petition No. 72/2002 have been considered as notional loan and the weighted average rate of interest on loan for the year 2004-05 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 well as per para 2 as above have 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 above loan allocation statement for working out weighted average rate of interest.
- (ii) Gross notional loan and cumulative repayment up to 31.3.2004 has been taken from the order dated 6.8.2003.
- (iii) Notional loan arising out of FERV during the years 2001-04 has been considered.
- (iv) The repayment of notional loan arising due to FERV during the years 2001-04 has been worked out in proportion to the repayment of actual loan during these years by the following formula:

$$\frac{\text{Actual repayment of actual loan during the year}}{\text{Opening balance + addition during the year of actual loan}} \times \text{Opening balance + addition during the year of notional loan arising due to FERV}$$

- (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 during the year, it is considered as moratorium and depreciation 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 per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.
- (viii) Corporation Bank, PNB and ADB-I loans carry 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.

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

Details of loan	400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina						400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur						315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur					
	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	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	41282.17						15304.35						2461.88					
Addition due to Additional Capitalisation	0.00						0.00						0.00					
Addition due to FERV	(-)1578.56						(-)442.00						(-)65.23					
Gross Normative Loan	39703.60	39703.60	39703.60	39703.60	39703.60	39703.60	14862.36	14862.36	14862.36	14862.36	14862.36	14862.36	2396.65	2396.65	2396.65	2396.65	2396.65	2396.65
Cumulative Repayment up to Previous Year		6689.60	9014.58	11493.52	14142.18	16978.00		2418.01	3614.04	4853.35	6140.35	7479.96		387.19	593.26	805.72	1025.22	1252.49
Net Loan-Opening		33014.00	30689.03	28210.09	25561.42	22725.60		12444.35	11248.31	10009.01	8722.00	7382.40		2009.46	1803.39	1590.93	1371.43	1144.16
Repayment during the year		2324.97	2478.94	2648.67	2835.82	2790.92		1196.03	1239.30	1287.01	1339.60	1161.23		206.07	212.46	219.50	227.27	191.98
Net Loan-Closing		30689.03	28210.09	25561.42	22725.60	19934.68		11248.31	10009.01	8722.00	7382.40	6221.16		1803.39	1590.93	1371.43	1144.16	952.18
Average Loan		31851.51	29449.56	26885.75	24143.51	21330.14		11846.33	10628.66	9365.51	8052.20	6801.78		1906.43	1697.16	1481.18	1257.80	1048.17
Weighted Average Rate of Interest on Loan		7.8627%	7.8094%	7.7481%	7.6750%	7.6196%		8.4020%	8.2903%	8.1529%	7.9755%	7.8334%		8.5393%	8.4176%	8.2651%	8.0637%	7.9001%
Interest		2504.38	2299.83	2083.13	1853.02	1625.28		995.32	881.15	763.56	642.20	532.81		162.80	142.86	122.42	101.43	82.81

22. It has been noticed that while approving tariff by order dated 6.8.2003, *ibid*, SBI-II loan was considered. This loan has since been re-financed by Bond XIII Option II on 31.7.2002. As the repayment schedule of SBI-II and Bond XIII Option is same, refinancing does not have any impact on tariff for the period ending 31.3.2004. However, benefits, if any, accruing as a result of refinancing shall be passed on by the petitioner to the respondents.

### **DEPRECIATION**

23. 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.

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

(Rs.in lakh)

	400 kV D/C Vindhychal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina							400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur							315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur						
	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		Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09	
As per order dated 6.8.2003	45525.83							16304.86							2598.32						
Addition during 2001-04 due to Additional Capitalization	0.00							0.00							0.00						
Addition during 2001-04 due to FERV	(1)1578.56							(-)442.00							(-)65.23						
Gross Block as on 31.3.2004	43947.27	43947.27	43947.27	43947.27	43947.27	43947.27		15862.86	15862.86	15862.86	15862.86	15862.86	15862.86		2533.09	2533.09	2533.09	2533.09	2533.09	2533.09	
Rate of Depreciation	2.7252%							2.9241%							3.1860%						
Depreciable value	90%	39349.99	39349.99	39349.99	39349.99	39349.99		90%	13956.51	13956.51	13956.51	13956.51	13956.51		90%	2279.78	2279.78	2279.78	2279.78	2279.78	
Balance useful life of the asset		-	-	-	-	-			-	-	-	-	-		-	-	-	-	-	-	
Remaining Depreciable value		29448.35	28250.72	27053.09	25207.81	22371.99			10498.91	10035.07	9103.16	7816.15	6476.55			1739.06	1658.35	474.06	1254.56	1027.29	
Depreciation		1197.63	1197.63	1197.63	1197.63	1197.63			463.84	463.84	463.84	463.84	463.84			80.70	80.70	80.70	80.70	80.70	

## **ADVANCE AGAINST DEPRECIATION**

25. 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

26. 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.

27. 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.

28. 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 along with notional loan worked out by division of FERV into notional loan and equity.
- (ii) Cumulative loan as well as repayment of notional loan during the year has been considered.

- (iii) Depreciation as worked out as per para 24 above.
  
- (iv) In addition to cumulative depreciation up to 2003-04 (including Advance Against Depreciation), depreciation on FERV for the period 2001-04 has been added to arrive at total cumulative depreciation amount as on 31.03.2004.

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



	400 kV D/C Vindhyachal-Satna & Satna-Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	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)	3970.36	3970.36	3970.36	3970.36	3970.36	1486.24	1486.24	1486.24	1486.24	1486.24	239.67	239.67	239.67	239.67	239.67
Repayment of the Loan	2324.97	2478.94	2648.67	2835.82	2790.92	1196.03	1239.30	1287.01	1339.60	1161.23	206.07	212.46	219.50	227.27	191.98
Minimum of the above	2324.97	2478.94	2648.67	2835.82	2790.92	1196.03	1239.30	1287.01	1339.60	1161.23	206.07	212.46	219.50	227.27	191.98
Depreciation during the year	1197.63	1197.63	1197.63	1197.63	1197.63	463.84	463.84	463.84	463.84	463.84	80.70	80.70	80.70	80.70	80.70
(A) Difference	1127.34	1281.31	1451.04	1638.18	1593.29	732.19	775.46	823.16	875.76	697.39	125.37	131.76	138.80	146.56	111.28
Cumulative Repayment of the Loan	9014.58	11493.52	14142.18	16978.00	19768.92	3614.04	4853.35	6140.35	7479.96	8641.19	593.26	805.72	1025.22	1252.49	1444.47
Cumulative Depreciation/ Advance against Depreciation	11099.28	12296.91	13494.54	15339.82	18175.63	3921.43	4385.27	5317.19	6604.20	7943.80	621.43	702.14	886.43	1105.93	1333.19
(B) Difference	(-)2084.70	-803.39	647.64	1638.18	1593.29	(-)307.39	468.07	823.16	875.76	697.39	(-)28.17	103.58	138.80	146.56	111.28
Advance against Depreciation Minimum of (A) and (B)	0.00	0.00	647.64	1638.18	1593.29	0.00	468.07	823.16	875.76	697.39	0.00	103.58	138.80	146.56	111.28

## **OPERATION & MAINTENANCE EXPENSES**

30. 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

31. The petitioner has claimed O & M expenses for 1327 (1086+217+24) ckt- km of line length and 15 bays (6 at Satna, 2 at Bina, 6 at Raipur and 1 at Korba Sub-stations), which has been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

(Rs. in lakh)

	400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for line length	246.52	256.30	267.16	276.93	288.88	49.26	51.21	53.38	55.34	57.72	5.45	5.66	5.90	6.12	6.38
O&M expenses for bays	224.96	234.00	243.36	253.04	263.20	168.72	175.50	182.52	189.78	197.40	28.12	29.25	30.42	31.63	32.90
<b>TOTAL</b>	471.48	490.30	510.52	529.97	552.08	217.98	226.71	235.90	245.12	255.12	33.57	34.91	36.32	37.75	39.28

32. 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**

33. 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 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 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 (Rs. in lakh)</b>
400 kV D/C Vindhyachal-Satna & Satna –Bina transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina	1.8.1999	42749.97	561.30
400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur	1.1.2000	15262.06	195.57
315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur	1.4.2000	2462.89	31.09

### **(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.

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

(Rs.in lakh)

	400 kV D/C Vindhyachal-Satna & Satna – Bina Transmission lines and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur Transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting Transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	561.30	594.97	630.67	668.51	708.62	195.57	207.30	219.74	232.93	246.90	31.09	32.96	34.94	37.03	39.25
O & M expenses	39.29	40.86	42.54	44.16	46.01	18.17	18.89	19.66	20.43	21.26	2.80	2.91	3.03	3.15	3.27
Receivables	818.85	787.97	865.12	998.05	956.29	311.85	373.55	415.61	405.76	358.92	50.81	65.25	68.03	66.07	57.23
Total	1419.44	1423.80	1538.34	1710.72	1710.92	525.58	599.75	655.01	659.11	627.08	84.70	101.12	106.00	106.25	99.76
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	145.49	145.94	157.68	175.35	175.37	53.87	61.47	67.14	67.56	64.28	8.68	10.37	10.86	10.89	10.23

### TRANSMISSION CHARGES

35. 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 summarized below.

(Rs.in lakh)

	400 kV D/C Vindhyachal-Satna & Satna –Bina Transmission line and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur					315 MVA Inter connecting transformer-II with associated bays & Bus Reactor at Raipur ----- LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	1197.63	1197.63	1197.63	1197.63	1197.63	463.84	463.84	463.84	463.84	463.84	80.70	80.70	80.70	80.70	80.70
Interest on Loan	2504.38	2299.83	2083.13	1853.02	1625.28	995.32	881.15	763.56	642.20	532.81	162.80	142.86	122.42	101.43	82.81
Return on Equity	594.11	594.11	594.11	594.11	594.11	140.07	140.07	140.07	140.07	140.07	19.10	19.10	19.10	19.10	19.10
Advance against Depreciation	0.00	0.00	647.64	1638.18	1593.29	0.00	468.07	823.16	875.76	697.39	0.00	103.58	138.80	146.56	111.28
Interest on Working Capital	145.49	145.94	157.68	175.35	175.37	53.87	61.47	67.14	67.56	64.28	8.68	10.37	10.86	10.89	10.23
O & M Expenses	471.48	490.30	510.52	529.97	552.08	217.98	226.71	235.90	245.12	255.12	33.57	34.91	36.32	37.75	39.28
Total	4913.10	4727.82	5190.72	5988.27	5737.76	1871.09	2241.32	2493.67	2434.55	2153.51	304.85	391.52	408.21	396.43	343.40

36. 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.

37. The petitioner by an affidavit dated 26.9.2005 has sought approval for the reimbursement of expenditure of Rs. 1, 22,110/- 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 has also 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.

38. 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.

39. This order disposes of Petition No.73/2004.

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

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

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

**New Delhi dated the 14<sup>th</sup> February 2006**

**SUMMARY SHEET**

Name of the Company:	PGCIL											
Name of the Element:	315 MVA Inter connecting transformer-II with associated bays & Bus Reactor at Raipur LILO of Bhilai-Chandrapur Circuit-II and associated bays at Raipur			400 kV S/C Korba-Raipur transmission line and associated bays at Korba and Raipur, 315 MVA Inter connecting Transformer-I with associated bays & Bus Reactor at Raipur & LILO of Korba-Bhilai Circuit-III and associated bays at Raipur			400 kV D/C Vindhyaachal-Satna & Satna – Bina Transmission line and 400/220 kV sub-station at Satna and 400 kV bays in MPEB sub-station at Bina					
Actual DOCO:	1.4.2000			1.1.2000			1.12.2000					
Petition No.:	73/2004			73/2004			73/2004					
Tariff setting Period:	2004-09			2004-09			2004-09					
(Rs.in lacs)												
1 Capital Cost of the Project				65371.00@			65371.00@			65371.00@		
4 Admitted Capital Cost as on 1. 4.2004 for Calculation of Debt and Equity				2598.32			16304.86			45525.83		
5 Additional Capitalisation(works)				0.00			0.00			0.00		
2001-02				0.00			0.00			0.00		
2002-03				0.00			0.00			0.00		
2003-04				0.00			0.00			0.00		
Total				0.00			0.00			0.00		
6 Additional Capitalisation(FERV)				(-)65.23			(-)442.00			(-)578.86		
2001-02				62.10			-65.23			420.77		
2002-03				(-)32.18			(-)218.08			1502.77		
2003-04				(-)95.14			(-)644.69			(-)778.87		
Total				(-)65.23			(-)442.00			(-)2302.47		
7 Total Capital Cost as on 1. 4.2004(2+3+4)				2533.09			15862.86			43947.27		
8 Means of Finance :												
Debt				94.61%			2396.65			93.69%		
Equity				5.39%			136.44			6.31%		
Total				100.00%			2533.09			100.00%		
9 Gross Loan as on 1. 4.2004				2396.65			14862.36			39703.60		
Cumulative Repayment up to 31.3.2009 :				1444.47			8641.19			19768.72		
Repaid up to 31. 3.2004				391.01			2440.51					
From 1. 4.2001 to 31. 3.2004 (ACE & FERV)				(-)6.18			(-)4.85					
From 1. 4.2004 to 31. 3.2009				1931.5			1678.48					
Total				1444.47			8641.19					
10 Balance Loan to be repaid beyond 31. 3.2009 :				952.18			6221.16			19934.68		
11 Depreciation recovered up to 31. 3.09 :				1444.47			8641.19			19768.72		
	Dep	AAD	Total	Dep	AAD	Total	Dep	AAD	Total	Dep	AAD	Total
Recovered up to 31. 3.2004	416.46	122.38	538.84	2633.21	812.61	3445.82	7770.86	2091.61	9862.47			
From 1. 4.2001 to 31. 3.2004 (ACE & FERV)	1.89	0.00	1.89	11.77	0.00	11.77	39.17	0.00	39.17			
From 1. 4.2004 to 31. 3.2009	403.52	500.22	903.74	2319.21	2864.39	5183.60	5988.16	3879.11	9867.28			
Total			1444.47			8641.19			19768.72			
12 Balance Depreciation to be recovered beyond 31. 3.2009 :				835.31			5315.31			19581.08		
Capital cost for the purpose of Depreciation				2598.32			16304.86			45528.83		
ACE + FERV				(-)65.23			(-)442.00			(-)1578.56		
Capital cost as 1. 4.2004				2533.09			15862.86			43947.27		
Less: Land Cost				0.00			355.863			225.05		
				2533.09			15507.23			43722.22		
90% of Capital Cost as above				2279.78			13956.51			39349.99		
Cum. Depreciation to be recovered up to 31. 3.2009				1444.47			8641.19			19768.92		
Balance				835.31			5315.31			13581.08		

@ For the whole transmission system.