

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. **Shri K.N.Sinha , Member**
2. **Shri Bhanu Bhushan, Member**

Petition No. 10/2002

In the matter of

Petition for approval of tariff for 220 kV Jalandhar-Hamirpur D/C Transmission Line along with associated bay in Northern Region for the period from 1.9.2001 to 31.03.2004.

And in the matter of

Power Grid Corporation of India Ltd.

.... Petitioner

Vs

1. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
2. Himachal Pradesh State Electricity Board, Shimla
3. Punjab State Electricity Board, Patiala
4. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
5. Power Development Department, Govt. of J&K, Srinagar
6. Uttar Pradesh Power Corporation Ltd., Lucknow
7. Delhi Vidyut Board, New Delhi
8. Chief Engineer, Chandigarh Administration, Chandigarh
9. Uttranchal Power Corporation Ltd, Dehradun

.....Respondents

The following were present:

1. Shri U.C. Misra, Director (Pers), PGCIL
2. Shri Umesh Chandra, ED (Comml), PGCIL
3. Shri D.D. Dhayaseelan, DGM, PGCIL
4. Shri P.C. Pankaj, AGM (Comml), PGCIL
5. Shri U.K. Tyagi, DGM, PGCIL
6. Shri C. Kannan, CM (Fin), PGCIL
7. Shri G.M. Agarwal SE(LSP), RVPN
8. Shri A.K. Tandon, EE, UPPCL
9. Shri V.K. Gupta, Consultant, PSEB
10. Shri R.K. Arora, XEN, HVPN

ORDER
(DATE OF HEARING: 1.4.2004)

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff for 220 kV Jalandhar-Hamirpur D/C transmission line along with associated bays in Northern Region for the period from 1.9.2001 to 31.3.2004 based on terms and conditions of tariff contained in the Commission's notification dated 26.3.2001, (hereinafter referred to as "the notification dated 26.3.2001").

2. The original investment approval for the transmission line was accorded by Board of Directors of the petitioner company as per Memorandum dated 14.12.95 at an estimated cost of Rs. 4101.00 lakh (1st quarter 1995 price), including IDC of Rs. 595.00 lakh). Subsequently revised cost was approved by the Central Government vide Ministry of Power letter dated 13.12.2001 for Rs. 4308.00 lakh, including IDC of Rs. 414.00 lakh. The scope of work includes:

- (a) Construction of 220 KV Jalandhar-Hamirpur D/C Transmission Line,
- (b) 2 Nos. 220 KV bays at Jalandhar S/S (POWERGRID), and
- (c) 2 Nos. 220 KV bays at Hamirpur S/S (HPSEB).

3. The transmission line has been declared under commercial operation w.e.f. 1.9.2001. The estimated completion cost of these assets is stated to be Rs. 4323.13 lakh.

4. The petitioner has sought approval for transmission charges based on cost of Rs.4293.74 lakh as on 31.3.2003 as under:

(Rs. in lakh)

Transmission Tariff	2001-2002	2002-2003	2003-2004
Interest on Loan	146.50	255.23	242.38
Interest on Working Capital	10.20	18.51	19.91
Depreciation	66.19	116.08	118.85
Advance against Depreciation	0.00	0.00	27.06
Return on Equity	22.19	52.12	66.91
O & M Expenses	112.53	204.48	216.74
Total	357.60	646.41	691.85

5. The details furnished by the petitioner in support of its claim for Interest on Working Capital are as extracted below:

(Rs. in lakh)

	2001-2002	2002-2003	2003-2004
Spares	33.87	36.19	39.72
O & M expenses	16.08	17.04	18.06
Receivables	102.17	107.74	115.31
Total	152.12	160.97	173.09
Rate of Interest	11.50%	11.50%	11.50%
Interest	17.49	18.51	19.91
Pro rata Interest	10.20	18.51	19.91

6. In addition, the petitioner has prayed for approval of other charges like Income Tax, incentive, Development Surcharge, late payment surcharge, other statutory taxes, levies, cess, filing fee, etc in terms of the notification dated 26.3.2001.

CAPITAL COST

7. As laid down in the notification dated 26.3.2001, the project cost, which includes capitalised initial spares for the first 5 years of operation, as approved by CEA or an appropriate independent agency, other than Board of Directors of the generating company, as the case may be, shall be the basis for computation of tariff. The notification dated 26.3.2001 further provides that the actual capital expenditure incurred on completion of the project shall be the criterion for the fixation of tariff.

Where the actual expenditure exceeds the approved project cost the expenditure as approved by the CEA or an appropriate independent agency, as the case may be, shall be deemed to be the actual capital expenditure for the purpose of determining the tariff, provided that excess expenditure is not attributable to the 'Transmission Utility' or its suppliers or contractors and provided further that where a transmission services agreement entered into between the Transmission Utility and the beneficiary provides a ceiling on capital expenditure, the capital expenditure shall not exceed such ceiling.

8. As per the auditor's certificate furnished by the petitioner in December 2004, the actual completion cost of the transmission line is Rs 4323.13 lakh. Based on the audited expenditure submitted by the petitioner, the gross block, including IDC of Rs 353.23 lakh (indicated in the auditor's certificate), is worked out as under:

Expenditure up to date of commercial operation (1.9.2001):		Rs 4117.70 lakh
Gross block on date of commercial operation:		Rs 4117.70 lakh
Expenditure from date of commercial operation to 31.3.2002:		Nil
Gross block as on 31.3.2002	:	Rs 4117.70 lakh
Expenditure from 1.4.2002 to 31.3.2003:		Rs 176.04 lakh
Gross block as on 31.3.2003	:	Rs 4293.74 lakh
Expenditure from 01.04.2003 to 31.03.2004:		Rs 29.39 lakh
Gross block as on 31.03.2004 (Net of ERV till date)	:	Rs 4323.13 lakh
 Total completion cost:		 Rs 4323.13 lakh

(Initial spares included in above is Rs.36.55 lakh.

9. As per the original investment approval accorded by Board of Directors of the petitioner company, the assets were scheduled for commissioning within three years from that date, that is, by December,1998 . However, these assets have been declared under commercial operation w.e.f 1.9.2001. Thus there has been a time over-run of about 32 months.

10. The petitioner has furnished detailed explanation along with relevant correspondences/documents with regard to time over-run. These are discussed herein below.

(a) **Delay in award of the work by 27 months.** Initially project was to be funded through indigenous funding. However, due to delay in completion of Nathpa-Jhakri Generation Project , commissioning of associated transmission system, including Jalandhar sub-station, was rescheduled. Keeping in view that the Jalandhar-Hamirpur 220 KV D/C line is not a main evacuation line and delay in its commissioning will not affect the evacuation of power to Himachal Pradesh the implementation of the line was also deferred. The project was included for OECF funding in July, 1996. After completion of appraisal, the loan negotiations were held in December, 1996 but could become effective in June, 1997 only. Accordingly, the bids were invited in September, 1997 and award for construction of line was placed in March, 1998 with a completion period of 3 years matching with commissioning of Jalandhar sub-station. The work of transmission line was implemented by the petitioner and was completed in February, 2001.

(b) **Delay in completion of Hamirpur sub-station by HPSEB by 6 months.** 220 KV Jalandhar-Hamirpur transmission line was proposed to be terminated at Hamirpur sub-station (Mattansidh) of HPSEB, an existing 132 kV sub-station, which was to be upgraded to 220 KV by HPSEB. Accordingly, the work for 220 kV bays at Hamirpur sub-station was also entrusted to HPSEB on deposit work basis as they were implementing 220 KV bays. The work of transmission line was completed by the petitioner in February, 2001. HPSEB had also completed most of the works, except cabling works, which were

completed later along with their work of up-gradation to 220 kV sub-station in August, 2001. Accordingly, the project has been declared under commercial operation from 1st September, 2001.

(c) **Right of way problems - COURT CASES.** The work could not be undertaken because of the litigation involving local people who had obtained stay granted by the civil courts. It was only after vacation of the stay the work of construction of transmission line could be undertaken by the applicant.

(d) **Change in route alignment on request by PSEB.** Two nos. foundations were casted by NBCC. PSEB, however, subsequently requested for change of the route alignment of Jalandhar-Hamirpur line at Jalandhar sub station end to have bays of its own choice at Jalandhar sub-station. This change over was requested by PSEB to avoid Power line crossing near Jalandhar sub station falling in their way. Hence, these locations were recasted on 18.9.2000 and 30.9.2000. By that time one tower had already been erected on 30.12.1999, which was dismantled and re-erected on 23.10.2000.

(e) **PSEB Power Line Crossings.** There were several power line crossings of PSEB. For Jalandhar-Beas 132 kV transmission line, proposal for approval was submitted on 7.4.2000 and PSEB conveyed approval on 11.9.2000.

(f) **Power Line Crossings of BBMB.** There were two power line crossings of BBMB. The petitioner applied for crossing approval on 7.2.2000 and final crossing approval was conveyed by BBMB on 9.3.2000 to carry out the work. After working out planning with contractor, the petitioner applied for shut down on 13.5.2000 for 17.5.2000 and 19.5.2000, but Power Controller refused to give

shut down on these dates. The petitioner again applied for shut down on 25.5.2000 for 29.5.2000, 2.6.2000 and 6.6.2000. Then shut down was permitted on 2.6.2000 and 6.6.2000.

(g) **Railway Line CROSSING.** There is only one Railway line crossing in the line in between Jalandhar and Pathankot Sector (Railway stations involved are Bhogpur and Kala Bakra). Proposal for crossing was submitted on 25.8.1999, which was returned with some observations by the railway authorities. Again after meeting the observations, the case was submitted on 16/18.11.1999. Final approval was received on 28.3.2000. Actual blockage was approved in November, 2000 and section got completed on 17.11.2000.

11. On consideration of the above reasons, explained by the petitioner, we are satisfied that the delay in commissioning of the transmission assets is not attributable to the petitioner as this was beyond its control. In view of this, the gross block of Rs. 4117.70 lakh on the date of commercial operation as indicated by the petitioner based on auditor's certificate has been considered.

ADDITIONAL CAPITALISATION

12. The notification dated 26.3.2001 provides that tariff revisions during the tariff period on account of capital expenditure within the approved project cost incurred during the tariff period may be entertained by the Commission only if such expenditure exceeds 20% of the approved cost. In all cases, where such expenditure is less than 20%, tariff revision shall be considered in the next tariff period.

13. The petitioner has claimed additional capital expenditure on works for the period after 1.9.2001 in the petition. As the additional expenditure is less than 20% of the approved capital cost, the question of considering additional capitalisation on works at this stage does not arise.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

14. As per Para 4.3 of the notification dated 26.3.2001, capital expenditure of the transmission system shall be financed as per approved financial package set out in the techno-economic clearance of CEA or as approved by an appropriate independent agency, as the case may be. The petitioner has claimed tariff by taking debt and equity in the ratio of 94.23:5.77.

15. As per the revised cost estimates approved by Ministry of Power, the transmission assets have been funded with OECF assistance, domestic borrowings and the petitioner's internal resources, without specifying the exact debt-equity ratio. Under these circumstances, the actual debt-equity ratio as claimed by the petitioner has been considered. Accordingly, an amount of Rs. 237.71 lakh has been considered towards equity and an amount of Rs. 3879.99 lakh on account of loan.

INTEREST ON LOAN

16. As provided in the notification dated 26.3.2001, interest on loan capital is to be computed on the outstanding loans, duly taking into account the schedule of repayment, as per financial package approved by CEA or any independent agency.

17. In the calculation, the interest on loan has been worked by considering the gross amount of loan, repayment for the year 2001-02 to 2003-04 and rate of interest etc. as per the loan details for the assets commissioned after 31.3.2001 as submitted by the petitioner vide affidavit dated 1.9.2004.

18. It is noted from the petition that the following loans have been drawn after the date of commercial operation, that is, 1.9.2001, but have been considered for financing of capital expenditure as on the date of commercial operation by the petitioner:

(Rs. in lakh)

Loan	Date of Drawl	Amount
Oriental Bank of Commerce	26.3.2002	27.00
PNB-II	18.3.2002	32.00
Bond XII	28.3.2002	4.00

19. As neither return on equity nor interest on loan has been claimed by the petitioner from the date of commercial operation to the date of drawl of loan and the petitioner has claimed interest on these loans from the respective date of drawls, the same has been allowed as claimed in the petition. It is also noted from the petition that SBI-II has been refinanced during 2002-03, details of which as per petition have been taken for tariff calculations.

20. In case of JBIC loan, it is noted that amount as per petition is JPY 5963.53 lakh while as per loan reconciliation for the year 2001-02 submitted vide affidavit dated 1.9.2004, the same is JPY 5922.39 lakh. The petitioner in the affidavit dated 1.9.2004 of loan reconciliation has submitted that in case of Jalandhar-Hamirpur Transmission Line, JBIC loan drawn up to 31.3.2002 is JPY 5922.39 against allocation shown to the extent of JPY 5963.39 lakh. The difference of JPY 41.14 lakh is on account of works

executed before 2001-02 for which project specific loan reimbursement received during 2002-03.

21. The petitioner has, however, considered JPIC loan of JPY 5963.53 lakh as on the date of commercial operation and claimed tariff accordingly. Therefore, this amount has been considered as claimed in the petition.

22. Corporation Bank, PNB-I, PNB-II, BOI (FC Loan) and OBC loans carry floating rate of interest and the interest rates as submitted by the petitioner as per petition have been taken in the calculation. In view of the above, any change/resetting of the interest rate of the above loan during the tariff period covered in this petition would require settlement of the same mutually between the parties. In case they are unable to settle the question mutually, any one of them is at liberty to approach the Commission for appropriate decision.

23. On the basis of the details of loan, repayments and rate of interest, etc on record, interest on loan has been worked out as under:

(Rs. in lakh)

	2001-02	2002-03	2003-04
Gross Loan -Opening	3879.99	3879.99	3879.99
Cumulative Repayment up to the previous Year	0.00	0.00	0.00
Net Loan-Opening	3879.99	3879.99	3879.99
Repayment during the year	0.00	0.00	145.92
Net Loan-Closing	3879.99	3879.99	3734.07
Interest	146.50	255.21	242.32

24. The necessary details in support of interest on loan are extracted below:

(Rs. in lakh)			
Details of Loan	2001-02	2002-03	2003-04
No.of days in the Year	365	365	366
ICICI			
Gross Loan -Opening	78.00	78.00	78.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	78.00	78.00	78.00
Repayment during the year	0.00	0.00	7.80
Net Loan-Closing	78.00	78.00	70.20
Rate of Interest	12.15%	12.15%	12.15%
Interest	5.50	9.48	8.76
Repayment Schedule	10 Annual Instalments from 29.06.2003		
Bond-VII			
Gross Loan -Opening	183.00	183.00	183.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	183.00	183.00	183.00
Repayment during the year	0.00	0.00	36.60
Net Loan-Closing	183.00	183.00	146.40
Rate of Interest	13.64%	13.64%	13.64%
Interest	14.50	24.96	21.67
Repayment Schedule	5 Annual Instalments from 04.08.2003		
Corp. Bank			
Gross Loan -Opening	91.00	91.00	91.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	91.00	91.00	91.00
Repayment during the year-	0.00	0.00	4.55
Net Loan-Closing	91.00	91.00	86.45
Rate of Interest	12.25%	12.25%	12.25%
Interest	6.47	11.15	11.11
Repayment Schedule	20 Half yearly Instalments from 10.03.2004		
PNB-I			
Gross Loan -Opening	183.00	183.00	183.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	183.00	183.00	183.00
Repayment during the year	0.00	0.00	18.30
Net Loan-Closing	183.00	183.00	164.70
Rate of Interest	12.01%	12.01%	12.01%
Interest	12.77	21.98	21.97
Repayment Schedule	10 Annual Instalments from 30.03.2004		

Bond-X			
Gross Loan -Opening	54.00	54.00	54.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	54.00	54.00	54.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	54.00	54.00	54.00
Rate of Interest	10.90%	10.90%	10.90%
Interest	3.42	5.89	5.89
Repayment Schedule	12 Annual Instalments from 21.06.2004		
SBI-II / Bond XIII (Option-II) (Refinancing of SBI-II from Bond XIII- Option-II on 31.10.2002)			
Gross Loan -Opening	142.00	142.00	142.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	142.00	142.00	142.00
Repayment during the year	0.00	0.00	23.67
Net Loan-Closing	142.00	142.00	118.33
Rate of Interest - SBI-II	12.07%	12.07%	
Rate of Interest - Bond XIII -Option-II		7.85%	7.85%
Interest	9.95	14.64	9.90
Repayment Schedule	SBI-II - 6 Annual Instalments from 3.7.2003 (replaced on 31.10.2002) / Bond XIII - Option-II (6 Annual Instalments from 31.07.2003)		
BOI (Foreign Currency Loan)			
Gross Loan -Opening	101.52	101.52	101.52
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	101.52	101.52	101.52
Repayment during the year- 10 th June	0.00	0.00	0.00
	101.52	101.52	101.52
Repayment during the year- 10 th December	0.00	0.00	0.00
Net Loan-Closing	101.52	101.52	101.52
Rate of Interest	5.05%	5.05%	5.05%
Interest	2.98	5.13	5.13
Repayment Schedule	Equal Half yearly instalments from 10.06.2004		
JBIC (FC Loan)			
Gross Loan -Opening	2376.47	2376.47	2376.47
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	2376.47	2376.47	2376.47
Repayment during the year- 20 th Feb.	0.00	0.00	0.00
	2376.47	2376.47	2376.47
Repayment during the year- 20 th Aug.	0.00	0.00	0.00
Net Loan-Closing	2376.47	2376.47	2376.47
Rate of Interest	3.50%	3.50%	3.50%
Interest	48.31	83.18	83.18
Repayment Schedule	Equal Half yearly instalments from 20.02.2007		

Bond-IX			
Gross Loan -Opening	550.00	550.00	550.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	550.00	550.00	550.00
Repayment during the year	0.00	0.00	55.00
Net Loan-Closing	550.00	550.00	495.00
Rate of Interest	12.25%	12.25%	12.25%
Interest	39.13	67.38	63.27
Repayment Schedule	10 Annual Instalments from 22.08.2003		
Bond-XI Option I			
Gross Loan -Opening	58.00	58.00	58.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	58.00	58.00	58.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	58.00	58.00	58.00
Rate of Interest	9.80%	9.80%	9.80%
Interest	3.30	5.68	5.68
Repayment Schedule	12 Annual Instalments from 07.12.2005		
Oriental Bank of Commerce (Date of Drawl 26.03.2002 as per petition)			
Gross Loan -Opening	27.00	27.00	27.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	27.00	27.00	27.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	27.00	27.00	27.00
Rate of Interest	9.10%	9.10%	9.10%
Interest	0.04	2.46	2.46
Repayment Schedule	12 Annual Instalments from 22/26.03.2005		
PNB-II (Date of Drawl 18.03.2002 as per petition)			
Gross Loan -Opening	32.00	32.00	32.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	32.00	32.00	32.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	32.00	32.00	32.00
Rate of Interest	9.10%	9.10%	9.10%
Interest	0.11	2.91	2.91
Repayment Schedule	12 Annual Instalments from 08/18.03.2005		
Bond-XII (Date of Drawl 28.03.2002 as per petition)			
Gross Loan -Opening	4.00	4.00	4.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	4.00	4.00	4.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	4.00	4.00	4.00
Rate of Interest	9.70%	9.70%	9.70%
Interest	0.0043	0.39	0.39
Repayment Schedule	12 Annual Instalments from 28.03.2006		

Total Loan			
Gross Loan -Opening	3879.99	3879.99	3879.99
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	3879.99	3879.99	3879.99
Repayment during the year	0.00	0.00	145.92
Net Loan-Closing	3879.99	3879.99	3734.07
Interest	146.50	255.21	242.32

DEPRECIATION

25. With regard to depreciation, para 4(b) of the CERC notification dated 26.3.2001 provides:

- (i) The value base for the purpose of depreciation shall be the historical cost of the asset.
- (ii) Depreciation shall be calculated annually as per straight-line method at the rate of depreciation as prescribed in the Schedule attached to the notification.

Provided that the total depreciation during the life of the project shall not exceed 90% of the approved Original Cost. The approved original cost shall include additional capitalisation on account of foreign exchange rate variation also.

- (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.
- (v) Depreciation against assets relating to environmental protection shall be allowed on case-to-case basis at the time of fixation of tariff subject to the condition that the environmental standards as prescribed have been complied with during the previous tariff period.

26. The petitioner has claimed the depreciation on the capital expenditure of Rs.4293.74 in accordance with above principles.

27. The depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 4117.70 lakh at the rates as prescribed in the notification dated 26.3.2001. While approving depreciation component of tariff, the weighted average depreciation rate of 2.76% has been worked out. The break up of the capital cost has been considered as per the details furnished by the petitioner. The necessary calculations in support of calculation of weighted average rate of depreciation are as under:

	Total Cost (Rs. in lakh)	Approved capital cost (Rs. in lakh)	Rate of Depreciation	Depreciation (Rs. in lakh)
Capital Expenditure as on 31.8.2001				
Land	0.00		0%	0.00
Building & Other Civil Works	0.00		1.80%	0.00
Transmission Line	602.85		3.60%	21.70
Sub-Station Equipment	3472.97		2.57%	89.26
PLCC	41.88		6.00%	2.51
Total	4117.70	4308.00		113.47

28. The calculations in support of depreciation allowed are appended hereinbelow:

		(Rs. in lakh)		
		2001-02	2002-03	2003-04
Rate of Depreciation	2.76%			
Depreciable Value	3705.93			
Balance Useful life of the asset				
Remaining Depreciable Value		3705.93	3639.74	3526.27
Depreciation		66.19	113.47	113.47

ADVANCE AGAINST DEPRECIATION

29. In addition to allowable depreciation, the petitioner becomes entitled to Advance Against Depreciation when originally scheduled loan repayment exceeds the depreciation allowable as per schedule to the notification dated 26.3.2001. Advance Against Depreciation is computed in accordance with the following formula:

$$\text{AAD} = \text{Originally scheduled loan repayment amount subject to a ceiling of } 1/12^{\text{th}} \text{ of original loan amount minus depreciation as per schedule.}$$

30. The petitioner has not claimed advance against depreciation during 2001-02 and 2002-03 but has claimed an amount of Rs. 27.06 lakh for the year 2003-04 under this head.

31. For working out Advance Against Depreciation, $1/12^{\text{th}}$ of the loan as per the petition has been considered while repayment of loan as worked out above has been taken as repayment of the loan during the year. The petitioner is entitled to Advance Against Depreciation as calculated below:

(Rs. in lakh)

Advance Against Depreciation	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	323.33	323.33	323.33
Scheduled Repayment of the Loan(s)	0.00	0.00	145.92
Minimum of the above	0.00	0.00	145.92
Depreciation during the year	66.19	113.47	113.47
Advance Against Depreciation	0.00	0.00	32.45

OPERATION & MAINTENANCE EXPENSES

32. In accordance with the notification dated 26.3.2001, Operation and Maintenance expenses, including expenses on insurance, if any, are to be calculated as under:

- (a) Where O&M expenses, excluding abnormal O&M expenses, if any, on sub-station (OMS) and line (OML) are separately available for each region, these shall be normalised by dividing them by number of bays and line length respectively. Where data as aforesaid is not available, O&M expenses in the region are to be apportioned to the sub-station and lines on the basis of 30:70 ratio and these are to be normalised as below:

$$\text{O\&M expenses per Unit of the line length in Kms (OMLL)} = \frac{\text{Expenses for lines (OML)}}{\text{Average line length in Kms (LL)}}$$

$$\text{O\&M expenses for sub-stations (OMBN)} = \frac{\text{O\&M expenses for substations (OMB)}}{\text{Average number of bays (BN)}}$$

- (b) The five years average of the normalised O&M expenses for lines and for bays for the period 1995-96 to 1999-2000 is to be escalated at 10% per annum for two years (1998-99 and 1999-2000) to arrive at normative O&M expenses per unit of line length and per bay for 1999-2000.
- (c) The normative O&M per unit length and normative O&M per bay for the year 1999-2000 for the region derived in the preceding paragraph is to be escalated @ 6% per annum to obtain normative values of O&M expenses per unit per line length and per bay in the relevant year. These

normative values are to be multiplied by line length and number of bays (as the case may be) in a given system in that year to compute permissible O&M expenses for the system.

- (d) The escalation factor of 6% per annum is to be used to revise normative base figure of O&M expenses. Any deviation of the escalation factor computed from the actual inflation data that lies within 20% of the notified escalation factor of 6% shall be absorbed by utilities/beneficiaries.

33. The different elements of Operation & Maintenance expenses have been considered in the succeeding paragraphs in the light of provisions of the notification dated 26.3.2001 based on the data available since 1995-96.

Employee Cost

34. The petitioner has, inter alia, claimed incentive and *ex gratia* as a part of employee cost. The petitioner was asked to specify the amount of minimum statutory bonus paid to its employees under the Payment of Bonus Act. The petitioner vide its affidavit dated 6.2.2003 has stated that the incentive paid to employees does not include minimum statutory bonus. The petitioner has further stated that the *ex gratia* was being paid in lieu of bonus, as is customary and a normal practice followed in private and public sectors. The petitioner has also furnished a write-up on Incentive scheme in support of the claim. It has been clarified on behalf of the petitioner that even the top management of the petitioner company is paid incentive and *ex gratia* included as a part of employee cost in O&M expenses claimed. The payment of incentive other than the statutory minimum bonus is at the discretion of the petitioner

company and should be borne out of its profits or incentive earned from the respondents for higher availability of the Transmission System. In view of the above, the incentive and *ex gratia* payments made by the petitioner to its employees have been kept out of consideration for calculation of employee cost.

35. The petitioner was directed to furnish details of the arrears on account of pay and allowances for the period prior to 1995-96, but paid between 1995-96 to 1999-2000. The petitioner has submitted the details of such arrears, amounting to Rs. 14.99 lakh and Rs 19.33 lakh paid for Northern Region during 1995-96 and 1996-97. Similarly, the arrears for the previous years included in the employee cost for 1995-96 and 1996-97 for Corporate Office were stated to be Rs. 9.61 lakh and Rs. 35.60 lakh. The petitioner has also submitted that the arrears on account of pay revision from 01.01.97 to 31.03.2000 have been paid during the years 2000-01 and 2001-02 also. The amounts of these arrears as claimed by the petitioner are Rs. 362.56 lakhs and Rs. 263.86 lakhs for Northern Region and Rs. 297.13 lakh and Rs. 109.95 lakh for the Corporate Office for the years 2000-01 and 2001-02 respectively. The petitioner has prayed that the arrears on account of pay and allowances for the period prior to 1995-96 should be deducted while those pertaining to the period from 1995-96 to 1999-2000 but paid subsequent to 1999-2000 should be added to O&M charges. The petitioner has argued that since these pay arrears pertain to the period being considered for fixation of normative O&M, the arrears should be considered while fixing the normative O&M. We find the submission of the petitioner to be logical and have considered the submission in the calculation of employee cost.

Repair & Maintenance Expenses

36. The petitioner has submitted that the increase of 152.77 % in Repair & Maintenance expenses in 1997-98 (Rs 1121.85 lakh) over the previous year (Rs 443.82 lakh) is due to major repair of converter transformer under HVDC project. HVPNL has prayed for exclusion of such abnormal charges for calculating average O&M expenses. It is noted that the converter transformers in the Rihand-Dadri HVDC project have been under outage several times, which is not a normal phenomenon. It may be mentioned that in view of repeated outages in converter transformers, the petitioner has procured 3rd spare transformer for which the Commission has approved the tariff. In view of this, such major repair has been considered as abnormal and hence increase in expense has been limited to Rs 532.58 lakh (i.e. 20% over the previous year). In the next year i.e. 1998-99, the petitioner has claimed Repair and Maintenance expenses of the same order (Rs 1131.38 lakh) as in 1997-98. Thus, the Repair and Maintenance expenses in 1998-99 are also substantially high. Hence, in this year also the increase has been limited to Rs 639.10 lakh (i.e. 20% over the expenses considered admissible in previous year) for the purpose of normalisation. The abnormal increase of Repair and Maintenance expenses during 1997-98 and 1998-99 is evident from the O&M expenses for the year 1999-2000, which is Rs. 602.4 lakh. However, if any major repairs are undertaken during the tariff period covered by this order, the petitioner may approach the Commission with proper justification to claim the actual expenses as a part of O&M expenses.

Power Charges

37. In case of Corporate Office, the power charges as claimed by the petitioner have been considered in the calculation of O&M expenses. As regards Northern

Regional Transmission System (for short “ the NRTS”) the petitioner was directed to submit break up of power charges between sub-station facilities and residential colonies. The petitioner expressed its inability to furnish the data as it was not maintained. However, the petitioner has furnished details of power consumption for the residential colony in Western and Eastern Regions, which work out to be in the range of 20% of the total power charges. On the same basis, the power charges for the residential colony have been considered as 20% of total power charges claimed for Northern Region. As power charges for the residential colony need to be recovered from the employees, admissibility of power charges in case of the NRTS has been limited to 80% of the total claim.

Insurance

38. It has been noted that the petitioner has a policy of self-insurance for which it has created the insurance reserve. The insurance charges claimed by the petitioner are credited to the insurance reserve. The petitioner was directed to furnish the management policy on creation of insurance reserve, items of loss secured and the conditions thereto. The petitioner has submitted insurance policy of the petitioner company under affidavit dated 6.2.2003. The key features of the policy submitted by the petitioner are as under:

(a) Insurance reserve is created @ 0.1% on gross value of fixed assets at the close of the year, to meet the future losses arising from uninsured risks, except machinery breakdown for valve hall of HVDC, and fire risk of HVDC equipment and SVC sub-stations.

(b) The policy generally covers following:

- (i) Fire, lightning, explosion/implosion, and bush fire
 - (ii) Natural calamity: flood, earthquake, storm, cyclone, typhoon, tempest, hurricane, tornado, subsidence and landslide
 - (iii) Riot, strike/ malicious and terrorist damage
 - (iv) Theft, burglary, Missile testing equipment, impact damage due to rail/ road or animal, aircraft and articles dropped there from.
- (c) The losses of assets caused by the above causes are adjusted against insurance reserve as per the corporation guidelines.
- (d) The amount so set aside in the insurance reserve has not been separately claimed from the respondents and the expenses have been met from the permitted O&M charges under the tariff.

39. The petitioner has stated that the policy of self-insurance has also been followed by NHPC, where 0.5% per annum of the gross block of O&M projects is transferred to self-insurance reserve account. It has also been informed that the rate of 0.1% as booked under O&M expenses towards self-insurance reserve is lower than the insurance premium (0.22%) being charged by the insurance companies for the risks covered in the self-insurance policy. In support of this claim, the petitioner has placed on record a letter from Reliance General Insurance Company quoting for the insurance rate of the assets covered in the self-insurance policy of the petitioner company.

40. In view of the explanation furnished on behalf of the petitioner, the insurance charges as claimed have been considered in O&M expenses. We, however, make it explicit that the self-insurance provided by the petitioner is for replacement of the

damaged assets and the beneficiaries shall not be charged anything in case of damage due to any of the events mentioned in the insurance policy.

41. In case of Training & Recruitment expenses, Communication expenses, Traveling, Rent, and Miscellaneous Expenses as claimed by the petitioner have been considered for calculation, both in the case of the NRTS as well as Corporate Office.

Other Expenses

42. In case of NRTS, under the subhead "provisions", the petitioner has claimed amount of Rs 10.69 lakh, Rs 30.08 lakh and Rs 5.71 lakh for the years 1997-98, 1998-99 and 1999-2000 respectively for loss of stores. Similarly, amount of Rs 5.15 lakh in 1998-99 has been claimed on account of writing off of advance. These have not been considered admissible, since, these items are controllable by the petitioner and reflect the managerial efficiency of the petitioner. In case of Corporate Office, following expenses have not been admitted for reimbursement:

(a) Donation of Rs. 0.05 lakh, Rs. 30 lakh, Rs. 34.78 lakh and Rs. 600.03 lakh for the years 1995-96, 1996-97, 1898-99 and 1999-2000, as these donations are not related to transmission business. The expenditure on account of the donations need be borne by the petitioner out of other profits of the corporation.

(b) Provisions of Rs. 1107.61 lakh, Rs. 385.8 lakh and Rs. 0.27 lakh for the year 1996-97, 1997-98 and 1999-2000. These provisions were made for the loss of stores in Eastern Region and North Eastern Region, for bad and doubtful debt in Northern Region and for shortage of store in North Eastern Region. As all these items are controllable by the

petitioner and reflect the managerial efficiency. However, an amount of Rs. 11.14 lakh on account of fire at the corporate office in 1998-99 has been considered as admissible under the head provisions.

- (c) Legal expenses amounting to Rs. 2.65 lakh in the Corporate Office on legal opinion on CERC matters have not been allowed in line with the Commission's policy of allowing only the fees for the petitions filed in the Commission. However, other legal expenses for disputes related to compensation, contracts, service matters and labour cases have been admitted.

Recoveries

43. The details of the recoveries for the NRTS and the Corporate Office were furnished by the petitioner vide affidavit dated 6th February 2003. The petitioner in the aforesaid affidavit also furnished the "complete details" of the recoveries for the NRTS. According to the petitioner, the income from sale of bid documents has already been adjusted for under the sub-head Tender Expenses under the head Other Expenses. Hence, income under this sub-head has not been considered in the recovery for the NRTS as well as Corporate Office. Similarly, electricity charges recovered from employees residential buildings and other residential buildings have not been considered under the head "recovery" as 20% of the power charges for colony consumption have been deducted in case of the NRTS.

Allocation of Corporate Office Expenses to Various Regions

44. The petitioner has submitted the method for allocation of Corporate Office expenses to various Regions. The key steps in the apportionment of Corporate Office expenses among the regions are as under:

- i) Expenses booked under Training & Recruitment, Directors sitting fees, provisions, R&D, Write off of fixed assets/ non-operating expenses and donations are considered exclusively as O&M expenses.
- ii) After deducting these exclusive O&M expenses, the balance Corporate Office expenses are allocated in the ratio of Transmission charges to annual Capital outlay to obtain expenses allocated to O&M and construction activity.
- iii) The allocation to O&M activity obtained in step (ii) is added to exclusive O&M expenses obtained in step (i) to arrive at total O&M expenses in the Corporate Office.
- iv) RLDC expenses are then deducted from the total O&M expenses obtained in step (iii) to arrive at O&M expenses allocated to transmission business.
- v) O&M expenses allocated to transmission business are then allocated to various regions in the ratio of their respective transmission charges.

45. The methodology adopted by the petitioner for allocation of Corporate Office O&M expenses has been approved and followed in the calculation of O&M expenses. The comparative statement of O&M expenses claimed by the petitioner and those allowed and considered for the years 1995-96 to 1999-2000 for the purpose of computation of O&M expenses for the tariff period are given herein below:

**DETAILS OF O&M EXPENSES FOR POWERGRID SYSTEM IN
NORTHERN REGION**

(Rs. in Lakh)

Items	1995-96		1996-97		1997-98		1998-99		1999-2000	
	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for
Employee Cost	1475.76	1312.61	1651.14	1485.26	2224.24	2266.33	2686.78	2701.83	3287.71	2929.61
Repair & Maintenance	373.53	373.53	443.82	443.82	1121.85	532.58	1131.38	639.10	602.04	602.04
Power Charges	351.00	280.80	501.27	401.02	486.21	388.97	497.64	398.11	602.04	481.63
Training & Recruitment	7.88	7.88	9.54	9.54	11.57	11.57	13.29	13.29	11.57	11.57
Communications	81.37	81.37	69.53	69.53	100.32	100.32	85.82	85.82	75.13	75.13
Traveling	201.61	201.61	208.75	208.75	274.35	274.35	329.98	329.98	347.30	347.30
Printing & Stationery	25.14	25.14	33.62	33.62	30.15	30.15	26.65	26.65	27.59	27.59
Rent	14.93	14.93	15.79	15.79	24.54	24.54	23.48	23.48	20.86	20.86
Miscellaneous Expenses	342.46	342.46	402.74	402.74	495.03	495.03	619.64	619.64	632.82	632.82
Insurance	406.59	406.59	542.03	542.03	719.81	719.81	640.90	640.90	725.33	725.33
Others	215.95	215.95	150.09	150.09	292.18	281.49	188.39	145.16	237.43	231.72
Corporate Expenses Allocation	949.51	929.40	1216.57	598.75	1191.95	1028.16	1068.85	1066.49	1348.99	1090.89
TOTAL	4445.73	4192.27	5244.89	4360.93	6972.20	6153.30	7312.80	6690.45	7918.81	7176.49
Less : Recoveries		44.79		24.31		52.45		13.88		39.17
Net O&M Expenses	4445.73	4147.48	5244.89	4336.62	6972.20	6100.85	7312.80	6676.57	7918.81	7137.32

Method of Normalizing O&M Expenses

46. The following formulae for calculation of normative O&M expenses as per the notification dated 26.3.2001, as amended vide Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (Second Amendment) Regulations, 2003 published in the Gazette of India on 2.6.2003 have been followed:

$$AVOMLL = \frac{1}{5} \sum_{i=1995-1996}^{1999-2000} \frac{|OML_i|}{|LL_i|}$$

$$AVOMBN = \frac{1}{5} \sum_{i=1995-1996}^{1999-2000} \frac{|OMS_i|}{|BN_i|}$$

Where:

AVOMLL and AVOMBN are average normalized O&M expenses per Ckt. km of line length and per bay respectively.

OML_i and OMS_i are O&M expenses for the lines and for the sub-stations for the i^{th} year respectively.

LL_i and BN_i are the total line length in Ckt. km and total number of bays in the i^{th} year respectively.

47. As per the above method, AVOMLL and AVOMBN are calculated based on the data for the years 1995-96 to 1999-2000. These normalized averages correspond to the year 1997-98. After escalating these averages by 10% per annum for two years, the normative O&M expenses for the base year 1999-2000 have been obtained. Normative O&M expenses for subsequent years are obtained by escalating these normative figures by 6% per annum. Following table gives comparison of the normative O&M expenses as calculated by the petitioner and as per our calculations allowed for the base year i.e. 1999-2000 and afterwards:

NORMALISED O&M EXPENSES FOR NORTHERN REGION

(Rs. in Lakh)

S. NO.	Items	1995-96	1996-97	1997-98	1998-99	1999-2000	Total for five years 95-96 to 99-00	99-00	2000-01	2001-02	2002-03	2003-04
1	Total O&M expenses(Rs. in lakh)	4147.48	4336.62	6100.85	6676.57	7137.32						
2	Abnormal O&M expenses	0.00	0.00	57.64	107.13	99.08	263.85					
3	Normal O&M expenses (S.No. 1 -S.NO. 2)	4147.48	4336.62	6043.21	6569.44	7038.24						
4	OML (O&M for lines)= 0.7 X S. NO.3	2903.24	3035.63	4230.25	4598.61	4926.77	19694.50					
5	OMS (O&M for substation) = 0.3XS.NO.3	1244.24	1300.99	1812.96	1970.83	2111.47	8440.49					
6	Line length at beginning of the year in Kms.	9622.13	9622.13	9743.48	10561.88	10819.55						
7	Line length added in the year in Kms.	0.00	121.35	818.40	257.67	1705.07						
8	Line length at end of the year in Kms.	9622.13	9743.48	10561.88	10819.55	12524.62						
9	LL (Average line length in the Region)	9622.13	9682.81	10152.68	10690.72	11672.09	51820.43					
10	NO. of bays at beginning of the year	157	157	161	183	185						
11	NO. of bays added in the year	0	4	22	2	31						
12	NO. of bays at the end of the year	157	161	183	185	216						
13	BN (Average number of bays in the Region)	157.0	159.0	172.0	184.0	200.5	872.50					
14	AVOMLL(OML/LL)	0.302	0.314	0.417	0.430	0.422	1.884					
15	AVOMBN(OMS/BN)	7.925	8.182	10.540	10.711	10.531	47.890					
16	NOMLL(allowable O&M per unit of line length)			0.3768	0.4145	0.4560		0.4560	0.4833	0.5123	0.5431	0.5756
17	NOMBN(Allowable O&M per bay)			9.5780	10.5358	11.5894		11.5894	12.2847	13.0218	13.8031	14.6313
	NOMLL(as calculated by petitioner)			0.42				0.51	0.54	0.57	0.60	0.64
	NOMBN(as calculated by petitioner)			10.75				13.01	13.79	14.62	15.50	16.43

48. The differences in NOMLL and NOMBAN as calculated by the petitioner and as allowed are mainly on account of certain expenses disallowed by us as explained in preceding paragraphs. Using these normative values, O&M charges have been calculated.

49. In our calculations the escalation factor of 6% per annum has been used. In accordance with the notification dated 26.3.2001, if the escalation factor computed from the observed data lies in the range of 4.8% to 7.2%, this variation shall be absorbed by the petitioner. In case of deviation beyond this limit, adjustment shall be made on by applying actual escalation factor arrived at on the basis of weighted price index of CPI for industrial workers (CPI_IW) and index of selected component of WPI (WPI_TR).

50. The details of O&M expenses allowed are given hereunder:

2001-02			2002-03			2003-04		
Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)	Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)	Line length in Ckm	No. of bays	O&M expenses (Rs. in lakh)
248	4	104.39	248	4	189.9	248	4	201.28

RETURN ON EQUITY

51. As per the notification dated 26.3.2001, return on equity shall be computed on the paid up and subscribed capital and shall be 16% of such capital. It further provides that premium raised by the Transmission Utility while issuing share capital & investment of internal resources created out of free reserve of the existing utility, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing the return on equity, provided such premium amount and

internal resources are actually utilised for meeting the capital expenditure of the Transmission project and forms part of the approved financial package as set out in the techno-economic clearance accorded by the Authority.

52. Equity of Rs.237.71 lakh has been considered for the purpose of tariff. On this basis, the petitioner shall be entitled to return on equity each year during the tariff period as under:

2001-02	Rs. 22.19 lakh
2002-03	Rs. 38.03 lakh
2003-04	Rs. 38.03 lakh

INTEREST ON WORKING CAPITAL

53. As provided in the notification dated 26.3.2001, the interest on working capital shall cover:

- (a) Operation and maintenance expenses (cash) for one month;
- (b) Maintenance spares at a normative rate of 1% of the capital cost less 1/5th of the initial capitalised spares. Cost of maintenance spares for each subsequent year shall be revised at the rate applicable for revision of expenditure on O & M of the transmission system; and
- (c) Receivables equivalent to two months' average billing calculated on normative availability level, which is 98%.

54. In our calculations, maintenance spares for the year 2001-02 to 2003-04 have been worked out on the basis of capital expenditure up to the date of commercial

operation. A deduction of 1/5th of initial capitalised spares has been made therefrom. Thereafter, the amount has been escalated @ 6% of the maintenance expenses for 2001-02 and 2002-03 to arrive at maintenance spares for the years 2002-03 and 2003-04 respectively.

55. The petitioner has claimed interest on working capital at the rate of 11.5%, based on annual SBI PLR for the year 2001-2002, which has been allowed separately by the Commission in certain other petitions and, therefore, the same has been allowed here also despite the objection of some of the respondents. The detailed calculations in support of interest on working capital are as under:

Interest on Working Capital

		(Rs. in lakh)		
Working Capital		2001-02	2002-03	2003-04
Rate of Escalation for maintenance spares		6%	6%	6%
Maintenance Spares	1%	33.87	35.06	37.16
O & M expenses		14.93	15.83	16.77
Receivables		99.81	102.37	107.69
Total		148.61	153.25	161.62
Rate of Interest		11.50%	11.50%	11.50%
Interest		9.97	17.62	18.59

TRANSMISSION CHARGES

56. In the light of above discussion, we approve the transmission charges as given in the Table below:

TABLE

		(Rs. in lakh)		
Transmission Tariff		2001-02	2002-03	2003-04
Interest on Loan		146.50	255.21	242.32
Interest on Working Capital		9.97	17.62	18.59
Depreciation		66.19	113.47	113.47
Advance against Depreciation		0.00	0.00	32.45
Return on Equity		22.19	38.03	38.03
O & M Expenses		104.49	189.90	201.28
Total		349.33	614.24	646.13

57. The difference between the petitioner's claim and the transmission charges being allowed for different elements is primarily on account of difference in the capital cost considered.

58. In addition to the transmission charges, the petitioner shall be entitled to other charges like Development Surcharge, income tax, incentive, surcharge and other cess and taxes in accordance with the notification dated 26.3.2001 subject to directions if any, of the superior courts. The petitioner shall also be entitled to recovery of filing fee of Rs 2 lakh, which shall be recovered from the respondents in five monthly installments of Rupees forty thousand each and shall be shared by the respondents in the same ratio as other transmission charges. This is subject to confirmation that the amount is not already included in O&M charges.

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

60. The transmission charges approved by us shall be included in the regional transmission tariff for Northern Region and shall be shared by the respondents in accordance with the notification dated 26.3.2001.

61. This order disposes of Petition No. 10/2002.

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

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

New Delhi dated the 21st February, 2005