

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

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

Petition No.55/2002

In the matter of

Petition for approval of tariff for 400 kV Biharsharif – Sasaram -Sarnath D/C transmission line under Eastern–Northern inter-regional HVDC Transmission System, for the period 1.7.2001 to 31.3.2004.

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, Jammu
6. Uttar Pradesh Power Corporation Ltd., Lucknow
7. Delhi Vidyut Board, New Delhi
8. Chandigarh Administration, Chandigarh
9. Uttaranchal Power Corporation Ltd., Dehradun
10. Bihar State Electricity Board, Patna
11. West Bengal State Electricity Board, Kolkata
12. Grid Corporation of Orissa Ltd., Bhubaneswar
13. Damodar Valley Corporation, Kolkata
14. Power Dept., Govt. of Sikkim, Gangtok
15. Jharkhand State Electricity Board, Ranchi

.....Respondents

The following were present

1. Shri P.C. Pankaj, AGM, PGCIL
2. Shri U.K. Tyagi, DGM, PGCIL
3. Shri C. Kannan, Chief Manager (Fin.), PGCIL
4. Shri D.D. Dhayaseelan, DGM (F&A), PGCIL
5. Shri Umesh Chandra, ED(Comml.), PGCIL
6. Shri U.C. Misra, Director, PGCIL
7. Shri R.K. Arora, XEN/T, HVPN
8. Shri G.M. Agarwal, SE(ISP), RVPN

9. Shri A.K. Tandon, EE, UPPCL
10. Shri V.K. Singh, BSEB

ORDER
(DATE OF HEARING: 23.3.2004)

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff in respect of 400 kV Bihar Sharif – Sasaram -Sarnath D/C transmission line under Eastern–Northern inter-regional HVDC Transmission System, for the period 1.7.2001 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 petitioner was entrusted with the implementation of Eastern-Northern Inter-regional HVDC Transmission Line. The administrative approval and expenditure sanction was initially accorded by the Central Government in Ministry of Power vide its letter dated 4.9.1998 at an estimated cost of Rs.67156.00 lakh, including IDC of Rs.9219.00 lakh, based on 3rd quarter 1997 price level. As per the investment approval, the project was to be commissioned within 39 months from that date, i.e. by December 2001. Subsequently, there had been a change in the scope of work based on system studies. Accordingly, the revised cost estimate for Rs.59310.00 lakh including IDC of Rs.4607.00 lakh and financing charges of Rs.464.00 lakh was approved by CEA.

3. A number of assets form part of the Transmission System. The present petition covers the 400 kV D/C Bihar Shariff-Sasaram-Allahabad Transmission Line up to

Sarnath. The tariff for other assets forming part of the transmission system are subject matter of Petition No.111/2002. Bihar Shariff-Sasaram-Sarnath Transmission Line was commissioned on 1.7.2001.

4. Based on the above-noted facts, the petitioner has sought approval for transmission charges for the period from 1.7.2001 to 31.3.2004 as under:

(Rs. in lakh)

Transmission Tariff	2001-2002	2002-2003	2003-2004
Interest on Loan	525.22	898.10	874.79
Interest on Working Capital	50.40	73.00	75.01
Depreciation	359.90	480.52	481.75
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	398.39	535.27	542.95
O & M Expenses	368.87	521.33	552.61
Total	1702.78	2508.22	2527.11

5. In addition, the petitioner has prayed for approval of other charges like Foreign Exchange Rate Variation, 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.

6. The petitioner has claimed interest on working capital as per the details given below:

(Rs in lakh)

	2001-02	2002-03	2003-04
Maintenance Spares	164.95	173.29	185.04
O & M expenses	40.99	43.44	46.05
Receivables	378.40	418.04	421.18
Total	584.34	634.77	652.27
Rate of Interest	11.50%	11.50%	11.50%
Interest (Annual)	67.20	73.00	75.01
Interest (Pro rata)	50.40	73.00	75.01

CAPITAL COST

7. As laid down in the notification dated 26.3.2001, the project cost 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.

8. As noted above, the original investment approval for the Eastern – Northern Inter-regional HVDC Transmission System was accorded by the Central Govt. in Ministry of Power vide letter dated 4th September 1998 at an estimated cost of Rs 67156.00 lakh at 3rd quarter 1997 price level. Subsequently, scope of work was changed based on the system studies. The techno-economic clearance for the project with revised scope was issued by CEA vide office memorandum dated 21.2.2003 at an estimated cost of Rs.59310.00 lakh including IDC of Rs.4607.00 lakh and financing charges of Rs.464.00 lakh (Fourth quarter, 2001 price level).

9. As per the auditor's certificate furnished by the petitioner in December 2004, the estimated completion cost of the part of the project covered in the present petition is Rs 18046 lakh. Based on the audited expenditure details submitted by the petitioner, the gross block, including IDC of Rs 1551 lakh (indicated in the Auditor's certificate), may be worked out as under:

Expenditure up to DOCO (30.06.2001)	:	Rs 17950.00 lakh
Gross block on DOCO	:	Rs 17950.00 lakh
Expenditure from DOCO to 31.03.2002	:	Nil
Gross block as on 31.03.2002	:	Rs 17950.00 lakh
Expenditure from 01.04.2002 to 31.03.2003	:	Rs 51.05 lakh
Gross block as on 31.03.2003	:	Rs 18001.05 lakh
Expenditure from 01.04.2003 to 31.03.2004	:	Nil
Gross block as on 31.03.2004	:	Rs 18001.05 lakh
Expenditure from 01.04.2004 to 30.06.2004	:	Nil
Balance anticipated expenditure	:	Rs 44.95 lakh
Total Estimated completion cost	:	Rs 18046.00 lakh

(The above includes initial spares for Rs 72.73 lakh)

10. The instant petition covers 400 kV Biharshariff - Sasaram - Sarnath transmission line along with bays. The tariff for other assets of Eastern-Northern inter-regional HVDC Transmission System are claimed in another petition (No 111/2002). As per the auditor's certificate submitted by the petitioner in petition 111/2002, the estimated completion cost of the assets covered in that petition is Rs 35704.10 lakh. Thus, estimated completion cost of the Transmission System as a whole is Rs.53750.00 lakh. According to the petitioner, the apportioned TEC cost of the asset covered under the present petition is Rs.18233.00 lakh whereas the estimated completion cost is Rs.18046.00 lakh. None of the respondents has raised any objection to apportionment of the approved cost furnished by the petitioner. BSEB has

stated that as per form-9 of the petition, the actual expenditure on transmission line is Rs 16360.00 lakh as against approved cost of Rs 15669.00 lakh and this difference of Rs 764.00 lakh is not justified. Similarly, BSEB has also pointed out that the petitioner has claimed IEDC of Rs 890.00 lakh whereas the amount of Rs 693.00 lakh was approved for contingencies in the TEC. However, since the total cost of the assets covered in this petition is less than the apportioned approved cost, the objection of BSEB is not tenable, particularly when this respondent has not substantiated that increase under individual heads of expenditure is attributable to the petitioner. The estimated completion cost and the apportioned approved cost as furnished by the petitioner are tabulated below:

S.No	Asset	Petition	Apportioned approved Cost (Rs in crore)	Estimated Completion Cost (Rs in crore)
1.	400 kv Biharshariff – Sasaram – Sarnath transmission line along with bays	55/2002	182.33	180.46
2.	Remaining portion of Eastern-Northern inter-regional HVDC transmission system	111/2002	410.76	357.04
	Total		593.10	537.50

11. As on 1.7.2001, the date of commercial operation, the petitioner has incurred a total expenditure of Rs.17950.00 lakh.

12. In view of the above, the tariff is being computed based on the gross block of Rs. 17950.00 lakh as on the date of commercial operation as claimed by the petitioner.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

13. 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. As per TEC of CEA, the complete transmission system is to be funded in the debt-equity ratio of 79.56:20.44. However, debt-equity or financial package for the component covered in the present petition are not given separately. The petitioner has claimed tariff by taking debt and equity in the ratio of 81.51:18.49. Since the debt-equity ratio claimed by the petitioner is favourable to the respondents, the same has been considered for determination of tariff in the present petition. Based on this ratio, a total loan of Rs.14631.12 lakh and equity of Rs.3318.88 lakh, as on the date of commercial operation are being considered.

INTEREST ON LOAN

14. 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. In keeping with this provision, while calculating Interest on loan, closing balance of the notional loan as on 31.3.2001 has been taken as opening balance of the loan as on 1.4.2001.

15. The interest on loan has been worked out by considering the gross amount of loan, repayments for the years 2001-02 to 2003-04 and rates of interest as per the loan details submitted by the petitioner under affidavit dated 1.9.2004.

16. The details of calculation of interest on loan are as given below:

Calculation of Interest on Loan

Details of Loan	(Rs. in lakh)		
	2001-02	2002-03	2003-04
No. of days in the Year	365	365	366
ICICI			
Gross Loan -Opening	1854.00	1854.00	1854.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	1854.00	1854.00	1854.00
Repayment during the year	0.00	0.00	185.40
Net Loan-Closing	1854.00	1854.00	1668.60
Rate of Interest	12.15%	12.15%	12.15%
Interest	169.10	225.26	208.21
Repayment Schedule	10 Annual Instalments from 29.06.2003		
Bond-VII			
Gross Loan -Opening	144.00	144.00	144.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	144.00	144.00	144.00
Repayment during the year	0.00	0.00	28.80
Net Loan-Closing	144.00	144.00	115.20
Rate of Interest	13.64%	13.64%	13.64%
Interest	14.74	19.64	17.05
Repayment Schedule	5 Annual Instalments from 04.08.2003		
Corp. Bank			
Gross Loan -Opening	72.00	72.00	72.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	72.00	72.00	72.00
Repayment during the year-	0.00	0.00	3.60
Net Loan-Closing	72.00	72.00	68.40

Rate of Interest	12.25%	12.25%	12.25%
Interest	6.62	8.82	8.79
Repayment Schedule	20 Half yearly Instalments from 10.03.2004		
PNB-I			
Gross Loan -Opening	144.00	144.00	144.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	144.00	144.00	144.00
Repayment during the year	0.00	0.00	14.40
Net Loan-Closing	144.00	144.00	129.60
Rate of Interest	12.01%	12.01%	12.01%
Interest	12.98	17.29	17.28
Repayment Schedule	10 Annual Instalments from 30.03.2004		
Bond-X			
Gross Loan -Opening	2048.00	2048.00	2048.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	2048.00	2048.00	2048.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	2048.00	2048.00	2048.00
Rate of Interest	10.90%	10.90%	10.90%
Interest	167.58	223.23	223.23
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	112.00	112.00	112.00
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	112.00	112.00	112.00
Repayment during the year	0.00	0.00	18.67
Net Loan-Closing	112.00	112.00	93.33
Rate of Interest - SBI-II	12.07%	12.07%	
Rate of Interest - Bond XIII -Option-II		7.85%	7.85%
Interest	10.15	11.55	7.81
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	2394.02	2394.02	2394.02
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	2394.02	2394.02	2394.02
Repayment during the year- 10th June	0.00	0.00	0.00
	2394.02	2394.02	2394.02
Repayment during the year- 10th December	0.00	0.00	0.00
Net Loan-Closing	2394.02	2394.02	2394.02
Rate of Interest	5.51%	5.51%	5.51%
Interest	99.02	131.91	131.91
Repayment Schedule	Equal Half yearly instalments from 10.06.2004		
IBRD-II (Date of Drawl 28.01.2002 as per petition)			
Gross Loan -Opening	7863.10	7863.10	7863.10
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	7863.10	7863.10	7863.10
Repayment during the year- 20th Feb.	0.00	0.00	0.00
	7863.10	7863.10	7863.10
Repayment during the year- 20th Aug.	0.00	0.00	0.00
Net Loan-Closing	7863.10	7863.10	7863.10
Rate of Interest	3.31%	3.31%	3.31%
Interest	44.92	260.27	260.27
Repayment Schedule	Equal Half yearly instalments from 15.12.2006		
Total Loan			
Gross Loan -Opening	14631.12	14631.12	14631.12
Cumulative Repayment up to Previous Year	0.00	0.00	0.00
Net Loan-Opening	14631.12	14631.12	14631.12
Repayment during the year	0.00	0.00	250.87
Net Loan-Closing	14631.12	14631.12	14380.25
Interest	525.12	897.98	874.57

17. Corporation Bank, PNB-1, Bank of India Foreign Currency loan and IBRD –II loan carry floating rates of interest. For the purpose of computation of interest on loan, the interest rates as submitted by the petitioner have been taken into consideration. In view of this, any changes/resetting of the interest rate of the above loans during the tariff period covered in this petition would be settled mutually between the parties and in case of their inability to do so, any one of them may approach the Commission for the appropriate decision.

DEPRECIATION

18. Based on the notification dated 26.3.2001, the petitioner is entitled to claim depreciation. The salient provisions for calculation of depreciation as per the notification dated 26.3.2001 are reproduced below:

- (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 dated 26.3.2001 dated 26.3.2001

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.

19. The petitioner has claimed the depreciation on the capital expenditure in accordance with the above principles. In the calculation, depreciation has been worked out on the capital cost as per para 12 above and the rates as prescribed in the notification dated 26.3.2001.

20. Based on the above, depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 17950.00 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 2.67% has been worked out. The capital cost has been considered as per the details furnished by the petitioner. The calculations in support of weighted average rate of depreciation of 2.67% are appended hereinbelow:

(Rs. in lakh)

	Capital Cost	Apportioned TEC cost	Rate of Depreciation	Depreciation
Capital Expenditures as on 30.6.2001				

Land	0.00		0%	0.00
Building & Other Civil Works	0.00		1.80%	0.00
Sub-Station Equipment	1624.00		3.60%	58.46
Transmission Line	16273.00		2.57%	418.22
PLCC	53.00		6.00%	3.18
Total	17950.00	18233.00		479.86
Weighted Average Rate of Depreciation			2.67%	

21. Accordingly, depreciation has been allowed as calculated below:

		(Rs. in lakh)		
		2001-02	2002-03	2003-04
Rate of Depreciation	2.67%			
Depreciable Value	16155.00			
Balance Useful life of the asset				
Remaining Depreciable Value		16155.00	15795.11	15315.25
Depreciation		359.90	479.86	479.86

ADVANCE AGAINST DEPRECIATION

22. 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. Advance Against Depreciation is computed in accordance with the following formula:

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

23. The petitioner has claimed Advance Against Depreciation on the basis of

- (i) 1/12th of gross loan worked out as per the gross block admitted by the Commission in the petition for previous tariff setting,

- (ii) Repayment of loans during the year and in case of foreign currency loan multiplying the repayment with exchange rate as on 31.3.2001 and depreciation on FERV as repayment during the year in the case of notional loan, and
- (iii) depreciation as claimed in the petition.

24. The entitlement of the petitioner has been considered in accordance with the notification dated 26.3.2001. In the calculation, Advance Against Depreciation has been worked out on the basis of gross loan and repayment and depreciation as worked out above. The petitioner's entitlement to Advance Against Depreciation has been calculated as shown below:

(Rs. in lakh)			
Advance Against Depreciation	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	1219.26	1219.26	1219.26
Scheduled Repayment of the Loan(s)	0.00	0.00	250.87
Minimum of the above	0.00	0.00	250.87
Depreciation during the year	359.90	479.86	497.86
Advance Against Depreciation	0.00	0.00	0.00

OPERATION & MAINTENANCE EXPENSES

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

- i) 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:

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

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

- ii) 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.
- iii) 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.
- iv) 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.

26. 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

27. 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.

28. 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.48.21 lakh and Rs 53.17 lakh paid for Eastern 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.159.26 lakh and Rs.(-) Rs.4.39 lakh for Eastern 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

29. WBSEB has stated that the petitioner has not furnished sufficient explanation for about 81% increase in repair and maintenance expenses during 1997-98 over

those of 1996-97. It is noted that the petitioner has explained that this variation is due to major repair in Kahalgaon-Biharshariff line due to collapse of tower. . Major repair is not a regular phenomenon, and hence expenses on this account have to be excluded from the process of normalisation. Therefore, "repair and maintenance" expenses in 1998-99 have been limited to Rs.399.68 lakh (20% over and above the "repair and maintenance" expenses for the year 1996-97). 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

30. In case of Corporate Office, the power charges as claimed by the petitioner have been considered in the calculation of O&M expenses. In case of Eastern Regional Transmission System (ERTS) the petitioner was directed to submit break up of power charges between substation facilities and the residential colonies. The petitioner in its affidavits filed in these proceedings has submitted the break up. Since, power charges for residential quarters in the colony are recoverable from the employees, such charges amounting to Rs 13.96 lakh, Rs 15.19 lakh, Rs 22.4 lakh, Rs 48.77 lakh and Rs 32.47 lakh for the five years from 1995-96 to 1999-2000 have been deducted from the total power charges claimed by the petitioner for the purpose of normalisation.

Insurance

31. 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.

32. 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.

33. 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.

33. 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 ERTS as well as Corporate Office.

Other Expenses

34. In case of ERTS, the petitioner has stated that the provisions are made for the losses and shortage of store materials and for the doubtful advances paid to contractors. Since all these items are controllable by the petitioner and reflect the managerial efficiency of the petitioner, the provisions made in case of ERTS on this account have not been considered as admissible for reimbursement. In case of Corporate Office, the 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. The petitioner has stated that provision of loss of store in Eastern Region (Rs 863.16 lakh in 1996-97) and provision of bad and doubtful debt in Northern Region (Rs 385.80 lakh in 1997-98) were written back during subsequent years in the regional books of account. In view of this, the petitioner has submitted that these expenses need not be considered while fixing the O&M of the respective regions. 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

35. The details of the recoveries for the ERTS 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 ERTS. 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 ERTS as well as Corporate Office. Similarly, electricity charges recovered/recoverable from employees residential buildings and other residential buildings have not been considered under the head "recovery" as the power charges for colony consumption have been deducted in case of the ERTS.

Allocation of Corporate Office Expenses to Various Regions

36. 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.

37. 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
EASTERN REGION**

(All Figures in 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	1003.20	843.52	1236.89	1108.76	1672.90	1600.67	1970.16	1907.01	2551.38	2167.94
Repair & Maintenance	263.18	263.18	333.07	333.07	602.04	399.68	407.97	407.97	533.34	533.34
Power Charges	302.04	288.08	367.49	352.30	400.30	377.90	378.85	330.08	407.02	374.55
Training & Recruitment	15.17	15.17	9.14	9.14	5.12	5.12	18.25	18.25	2.32	2.32
Communications	106.71	106.71	99.94	99.94	113.20	113.20	112.85	112.85	86.81	86.81
Travelling	193.08	193.08	191.47	191.47	228.42	228.42	236.18	236.18	270.55	270.55
Printing & Stationery	15.82	15.82	15.84	15.84	18.06	18.06	20.69	20.69	16.00	16.00
Rent	14.06	14.06	13.64	13.64	16.16	16.16	16.33	16.33	15.76	15.76
Miscellaneous Expenses	210.50	210.50	269.26	269.26	283.90	283.90	375.72	375.72	533.27	533.27
Insurance	6.78	6.78	7.99	7.99	98.26	98.26	102.58	102.58	104.55	104.55
Others	76.41	71.51	64.24	60.17	176.36	120.52	493.99	395.28	75.44	75.44
Corporate Expenses Allocation	536.01	524.66	414.68	204.09	391.89	338.04	349.15	348.38	402.73	325.67
TOTAL	2742.96	2553.07	3023.65	2665.67	4006.61	3599.94	4482.72	4271.32	4999.17	4506.20
Less : Recoveries		23.78		64.49		13.18		10.01		15.64
Net O&M Expenses	2742.96	2529.29	3023.65	2601.18	4006.61	3586.76	4482.72	4261.31	4999.17	4490.56

NOTE: Only charges for power consumption at sub-stations has been considered admissible

Method of Normalizing O&M Expenses

38. The following formulae for calculation of normative O&M expenses as per the notification, 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

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

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

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 substations for the ith year respectively.

LL_i and BN_i are the total line length in Ckt. km and total number of bays in the ith year respectively.

39. In the process of normalisation, abnormal expenses such as expenses on account of additional security have to be deducted as per the notification, for which the petitioner may file separate petition. Accordingly, the amount of Rs 23.33 lakh, Rs 0.68 lakh, Rs 24.78 lakh and Rs 143.56 lakh spent on CISF security at Salakati Substation of the Chukha Transmission System for the years 1996-97 to 1999-2000 has been deducted from the total O&M expenses for the region.

40. As per the above method, AVOMLL and AVOMBN are calculated based on the data for the years 1995-96 to 1999-2000. These normalised 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:

NORMALIZED O&M EXPENSES FOR EASTERN REGION

(All Figures in 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. Lakhs)	2529.29	2601.18	3586.76	4261.31	4490.56						
2	Abnormal O&M expenses	0.00	23.33	0.68	24.78	143.56	192.35					
3	Normal O&M expenses (S.No. 1 -S.NO. 2)	2529.29	2577.85	3586.08	4236.53	4347.00						
4	OML (O&M for lines)= 0.7 X S. NO.3	1770.50	1804.49	2510.25	2965.57	3042.90	12093.71					
5	OMS (O&M for substation) = 0.3XS.NO.3	758.79	773.35	1075.82	1270.96	1304.10	5183.02					
6	Line length at beginning of the year in Kms.	4418.70	4418.70	4418.70	4482.70	4665.70						
7	Line length added in the year in Kms.	0.00	0.00	64.00	183.00	86.00						
8	Line length at end of the year in Kms.	4418.70	4418.70	4482.70	4665.70	4751.70						
9	LL (Average line length in the Region)	4418.70	4418.70	4450.70	4574.20	4708.70	22571.00					
10	NO. of bays at beginning of the year	76	88	88	90	92						
11	NO. of bays added in the year	12	0	2	2	1						
12	NO. of bays at the end of the year	88	88	90	92	93						
13	BN (Average number of bays in	82.0	88.0	89.0	91.0	92.5	442.50					

	the Region)											
14	AVOMLL(OML/LL)	0.40	0.41	0.56	0.65	0.65	2.668					
15	AVOMBN(OMS/BN)	9.25	8.79	12.09	13.97	14.10	58.194					
16	NOMLL(allowable O&M per unit of line length)			0.5335	0.5869	0.6456		0.6456	0.6843	0.7254	0.7689	0.8150
17	NOMBN(Allowable O&M per bay)			11.6389	12.8028	14.0831		14.0831	14.9280	15.8237	16.7731	17.7795
18	NOMLL(as calculated by petitioner)			0.6000				0.7300	0.7700	0.8200	0.8700	0.9200
19	NOMBN(as calculated by petitioner)			13.0500				15.7900	16.7400	17.7400	18.8000	19.9300

41. The differences in NOMLL and NOMBN 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.

42. In our calculations the escalation factor of 6% per annum has been used. In accordance with the notification, 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).

43. The petitioner has claimed O&M expenses for line length of 542 km. In response to the objection raised by RRVPNL, the petitioner vide its affidavit dated 22.1.2004 has confirmed that line length. Therefore, the line length of 542 km has been considered to arrive at admissible O&M expenses. The petitioner has also

claimed O&M expenses for 4 bays - 2 line bays at Biharshariff sub-station and 2 line bays at Sarnath sub-station, which have also been considered for calculation of O&M expenses.

44. O&M expenses allowed are given hereunder:

2001-02 (Pro rata)			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)
542	4	342.36	542	4	483.84	542	4	512.85

RETURN ON EQUITY

45. In accordance with the notification, the petitioner is entitled to return on equity at the rate of 16% per annum. For the purpose of tariff equity of Rs. 3318.88 lakh has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 398.27 lakh during 2001-02 (part of the year) and Rs. 531.02 lakh each year during 2002-03 and 2003-04.

INTEREST ON WORKING CAPITAL

46. As provided in the notification, 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%.

47. In keeping with the above methodology, working capital has been worked out, on the basis of capital expenditure as on the date of commercial operation. The value of maintenance spares has been escalated @ 6% per annum for the years 2002-03 and 2003-04. Deduction of 1/5th of the initial capitalised spares has been considered in the calculations. 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)

		2001-02	2002-03	2003-04
Rate of Escalation for maintenance spares			6%	6%
Maintenance Spares	1%	164.95	173.03	184.28
O & M expenses		38.04	40.32	42.74
Receivables		372.28	410.73	411.93
Total		575.27	623.43	637.39
Rate of Interest		11.50%	11.50%	11.50%
Interest		49.62	71.69	73.30

TRANSMISSION CHARGES

48. 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	525.12	897.98	874.57
Interest on Working Capital	49.62	71.69	73.30
Depreciation	359.90	479.86	479.86
Advance against Depreciation	0.00	0.00	0.00
Return on Equity	398.27	531.02	531.02
O & M Expenses	342.36	483.84	512.85
Total	1675.26	2464.39	2471.60

49. 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 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.

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

51. The transmission charges approved by us shall be included in the regional transmission tariff for Eastern and Northern Regions and shall be shared by the regional beneficiaries in accordance with the notification dated 26.3.2001.

52. This order disposes of Petition No.55/2002.

Sd/-
(BHANU BHUSHAN)
MEMBER

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 3rd March 2005