

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

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

Petition No.26/2002

In the matter of

Petition for approval of tariff for 400 kV Ramagundam Transmission System, including ICT at Khammam and Reactor at Gazuwaka under CTP Augmentation in Southern Region for the period 1.4.2001 to 31.3.2004.

And in the matter of

Power Grid Corporation of India Ltd.

.... **Petitioner**

Vs

1. Karnataka Power Transmission Corporation Ltd, Bangalore
 2. Transmission Corporation of Andhra Pradesh, Hyderabad
 3. Kerala State Electricity Board, Thiruvananthapuram
 4. Tamil Nadu Electricity Board, Chennai
 5. Electricity Department, Govt. of Pondicherry, Pondicherry
-**Respondents**

The following were present:

1. Shri R.G. Yadav, ED (SO), PGCIL
2. Shri P.C. Pankaj, AGM, PGCIL
3. Shri U.K. Tyagi, DGM, PGCIL
4. Shri C. Kannan, Chief Manager, PGCIL
5. Shri D.D. Dhayasee, PGCIL
6. Shri V. Mittal, AGM (SO), PGCIL
7. Shri Sunil Agrawal, DGM (SO), PGCIL
8. Shri K. Gopalakrishnan, KSEB
9. Shri R Balachandran, KSEB
10. Shri S. Sowmyanarayanan, Consultant, TNEB

**ORDER
(DATE OF HEARING: 23.9.2003)**

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff for 400 kV Ramagundam Transmission System, including ICT at

Khammam and Reactor at Gazuwaka under CTP Augmentation in Southern Region for the period from 1.4.2001 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. It has been stated that approval for capital investment of Rs.501.89 crore for Ramagundam Super Thermal Power Station-II (2x500 MW) and capital investment of Rs.48.09 crore for its associated transmission facilities was accorded by the Central Government vide letter No.5/24/81-USD VI dated 30.9.1981. The revised sanction for the capital investment of Rs.879.52 crore towards the generation project and Rs.272.68 crore for the associated transmission system for the project was conveyed vide letter No.5(6)/77-USD VI /Vol.V dated 22.9.1983. Subsequently, Ministry of Power, vide letter No.5/3/85-US(CT) dated 27.11.1990 approved Revised Cost Estimate (RCE) of Ramagundam for Rs.1985.12 crore, which included Rs.1674.62 crore for the generating station and Rs.310.50 crore for the associated transmission system. Also, approval for additional assets under augmentation of central transmission project in Southern Region was accorded by the Board of Directors of the petitioner company under its delegated powers vide Memorandum No.C/CP/SQ2-00 dated 12.5.1994 for Rs.38.57 crore which, inter alia, included implementation of one No.315 MVA, 400/220 kV Transformer at Khammam and one No. 50 MVAR Reactor at Gazuwaka,. The apportioned approved cost of these two assets is stated to be Rs.20.12 crore.

3. The tariff for the Transmission System was notified by Ministry of Power vide its notification No.2/3/POWERGRID/Tariff/98 dated 1.12.1998. The tariff was further

revised by Ministry of Power vide notification No.2/3/Powergrid/Tariff/99-(13) dated 14.5.1999 to provide for additional capitalisation. The total admitted capital cost of the Transmission System as per the above mentioned notifications is Rs.354.44 crore based on which the tariff was notified.

4. The approved scope of work covered under the Transmission System have been completed between 1.10.1984 to 1.2.1997 as under:

Sl.No.	Name of Line	Date of commercial operation
1.	400 kV S/C Ramagundam-Hyderabad	1.10.1984
2.	400 kV S/C Hyderabad-Nagarjuna Sagar	1.9.1985
3.	400 kV S/C Nagarjuna Sagar-Cuddappah-I	1.2.1986
4.	400 kV S/C Cuddappah-Bangalore	1.8.1986
5.	400 kV S/C Cuddappah-Madras	6.6.1988
6.	400 kV S/C Ramagundam-Nagarjuna Sagar (Circuit I) (Circuit II)	21.6.1988 10.12.1988
7.	400 kV S/C Nagarjuna Sagar-Cuddappah-II	15.3.1989
8.	400 kV S/C Bangalore-Salem	23.11.1988
9.	400 kV S/C Nagarjuna Sagar-Munirabad	1.8.1989
10.	315 MVA 400/220 kV Transformer at Khammam	1.1.1997
11.	50 MVAR Reactor at Gazuwaka	1.2.1997

5. The petitioner in the present petition has sought approval for transmission charges for the period from 1.4.2001 to 31.3.2004 as under:

Transmission Tariff	(Rs. in lakh)		
	2001-2002	2002-2003	2003-2004
Interest on Loan	110.77	83.95	57.13
Interest on Working Capital	172.54	185.90	182.01
Depreciation	1047.62	1047.62	1047.62
Advance against Depreciation	134.81	533.85	0.00
Return on Equity	2076.09	2076.09	2076.09
O & M Expenses	1914.16	2018.27	2149.42
Total	5455.99	5945.68	5512.27

6. The petitioner has submitted the following details in support of its claim for Interest on Working Capital:

(Rs. in lakh)

	2001-2002	2002-2003	2003-2004
Spares	431.51	457.40	484.84
O & M expenses	159.51	168.19	179.12
Receivables	909.33	990.95	918.71
Total	1500.35	1616.54	1582.67
Rate of Interest	11.50%	11.50%	11.50%
Interest	172.54	185.90	182.01

7. In addition, the petitioner has prayed for approval of Development Surcharge @ 10% in terms of the notification dated 26.3.2001.

CAPITAL COST

8. 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 excesses 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.

9. The tariff for the assets forming subject matter of the present petition was notified by the Ministry of Power vide its notification dated 1.12.1998 read with the notification dated 14.5.1999 by considering cost of Rs. 35444.02 lakh. Therefore, for the purpose of present petition, the capital cost as considered by Ministry of Power shall be taken as the base for determination of tariff in the present petition.

ADDITIONAL CAPITALISATION

10. 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.

11. The petitioner has not claimed the additional capital expenditure.

EXTRA RUPEE LIABILITY

12. The notification dated 26.3.2001 provides that

- (a) Extra rupee liability towards interest payment and loan repayment actually incurred, in the relevant year shall be admissible; provided it directly arises out of foreign exchange rate variation and is not attributable to Utility or its suppliers or contractors. Every utility shall follow the method as per the Accounting Standard-11 (Eleven) as issued by the Institute of Chartered Accountants of India to calculate the impact of exchange rate variation on loan repayment.

(b) Any foreign exchange rate variation to the extent of the dividend paid out on the permissible equity contributed in foreign currency, subject to the ceiling of permissible return shall be admissible. This as and when paid, may be spread over the twelve-month period in arrears.

13. The petitioner has claimed FERV in accordance with the following method:

Outstanding loan as on 31.3.2001 (in foreign currency) X (exchange rate as on 31.3.2001 - exchange rate as on the date of commercial operation/1.4.92)

14. The amount of FERV arrived at in the above manner has been added to the capital cost as on 1.4.2001, the base capital cost for the present tariff period.

15. We have considered the matter. On consideration of the fact that the method up to 31.03.2001 to allow the FERV was on repayment of loan and payment of interest on actual basis, we have decided that FERV to be capitalised for adding to the gross block as on 01.04.2001 would be calculated in the following manner:

Foreign Loan outstanding as on 31.03.2001 x (Exchange Rate as on 31.03.2001 - Exchange Rate as on date of commercial operation as given in the petition).

16. As per Accounting Standard 11 of the Institute of Chartered Accountant of India, exchange difference arising on account of repayment of liabilities incurred for the purpose of acquiring fixed assets, which are carried in terms of historical cost, should be adjusted in the carrying amount of the respective fixed assets. In other

words, FERV should be added in the respective head of gross block, which was financed, from the foreign loan on which FERV is proposed to be allowed. The petitioner has allocated the FERV amount claimed on transmission line, sub-station and PLCC only. As the necessary details are not available, FERV amount has been allocated to all the heads of gross block in proportion to their ratio to the total gross block.

17. FERV amount has been calculated in accordance with the above methodology, as per details given here under:

FERV on the outstanding loan as on 31.03.2001	
IBJ-II (Tranche D)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	676.18
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	95.63
Commerz Bank (Tranche B&C IBJ-II replacement)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	775.62
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	109.70
ING Bank (Tranche B&C IBJ-II replacement)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	1777.24
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	251.35
SUMITOMO (Replacement of Exim Bank)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	4150.10
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	586.94
IBJ-III (Replacement of Exim Bank)	
Outstanding balance as on 31.03.2001 (in JPY lakh)	9350.53
Exchange Rate as on 31.03.2001	0.377
Exchange Rate as on DOCO/01.04.1992	0.235571
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	1322.44
IBRD	
Outstanding balance as on 31.03.2001 (in USD lakh)	13.52
Exchange Rate as on 31.03.2001	46.88
Exchange Rate as on DOCO/01.04.1992	36.14
FERV on the outstanding loan as on 31.03.2001 (Rs. in lakh)	145.20
Total	2511.27

18. FERV of Rs. 2511.27 lakh has been added to the capital cost and considered for the purpose of tariff fixation. The capital expenditure considered in the calculations for tariff is under:

	(Rs. in lakh)
Capital Expenditure up to 31.3.2001	35444.02
FERV up to 31.3.2001	2511.27
Capital Expenditure up to 31.3.2001	37955.29
Additional Capital Expenditure after 31.3.2001	0.00
Capital Expenditure considered for tariff fixation	37955.29

19. The approval of FERV is subject to the condition that the petitioner shall furnish a certificate within four weeks of this order that there has been no drawl of the foreign loan after date of commercial operation of the transmission elements claimed in the petition. If petitioner fails to submit the certificate within stipulated time, no amount on account of FERV would be allowed as pass through in tariff of concerned line.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

20. 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 50:50 as was considered by Ministry of Power for earlier tariff setting. FERV amount has also been added to the loan and equity as on 01.04.2001 in the same ratio of 50:50. It is pointed out on behalf of the respondents that taking debt and equity as claimed by the petitioner will result into higher return on equity (ROE). The respondents have submitted that equity of 20% should be considered for the purpose of fixation of tariff.

21. In the present case, the assets were commissioned before 1.4.1997 and Ministry of Power while notifying tariff vide notifications dated 1.12.1998 and 14.5.1999 had considered debt and equity on notional basis in the ratio of 50:50 of the Net Fixed Assets as on 1.4.1997 in view of Ministry of Power notification dated 16.12.1997, as amended vide notification dated 8.4.1999. Therefore, the debt-equity ratio of 50:50 as considered earlier has been considered for determination of tariff in respect of these assets. FERV has been added to debt and equity in the same ratio of 50:50.

INTEREST ON LOAN

22. 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.

23. The petitioner has claimed interest on the notional loan arrived at by reducing cumulative depreciation from 1997-1998 to 2000-2001 from the notional loan as on 1.4.1997 as was admitted in Ministry of Power tariff notifications for the previous tariff setting along with notional loan arising out of FERV claimed. Depreciation during the years 2001-2002 to 2003-2004 has been taken as repayment of loans during the respective years. Weighted average rate of interest is worked out on the basis of actual outstanding loans as on 1.4.2001 and their actual rate of interest, as on 1.4.2001. The above weighted rate of interest is applied on the average normative loan during the respective year to arrive at the interest on normative loan.

24. In keeping with the provisions of the notification dated 26.3.2001, the following methodology has been adopted for calculation of interest on loan:

- (i) The closing balance of the notional loan as on 31.3.2001 is taken as the opening balance of the loan as on 1.4.2001.
- (ii) FERV portion of loan has been added to the above loan.
- (iii) Repayment of the loan during the year has been worked out as per the methodology followed in earlier cases by taking the actual repayment during the year or the repayment arrived at in accordance with the following formula, whichever is higher:

$\text{Actual repayment during the year} \times \text{notional net loan at the beginning of the year} / \text{actual net loan at the beginning of the year},$

- (iv) On the basis of actual rate of interest on actual average loan, the weighted rate of interest on loan is worked out and the same is applied on the notional average loan during the year to arrive at the interest on loan.

25. The relevant details in support of calculation of weighted average rate of interest on loan are given hereunder:

CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN

(Rs. in lakh)

Details of Loan	2001-2002	2002-2003	2003-2004
NTPC Bonds			
Gross Loan -Opening ¹	89.14	89.14	89.14
Cumulative Repayment up to Previous Year	0.00	89.14	89.14
Net Loan-Opening	89.14	0.00	0.00
Repayment during the year	89.14	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	44.57	0.00	0.00
Rate of Interest-(Fixed)	9.00%	9.00%	9.00%
Interest	4.01	0.00	0.00
Repayment Schedule	Bullet- 20.03.2002		
IBJ-II (Tranche D)			
Gross Loan -Opening ¹	597.33	597.33	597.33
Cumulative Repayment up to Previous Year	438.04	517.69	597.33
Net Loan-Opening	159.29	79.64	0.00
Repayment during the year	79.65	79.64	0.00
Net Loan-Closing	79.64	0.00	0.00
Average Loan	119.47	39.82	0.00
Rate of Interest-(Floating)	0.5225%	0.5225%	0.5225%
Interest	0.62	0.21	0.00
Repayment Schedule	14 Equal Half-Yearly Installments- 24.09.2001, 24.03.2002, 24.09.2002 and 24.03.2003		
Commerz Bank (Tranche B&C IBJ-II replacement)			
Gross Loan -Opening ¹	319.75	319.75	319.75
Cumulative Repayment up to Previous Year	137.03	228.39	319.75
Net Loan-Opening	182.71	91.35	0.00
Repayment during the year	91.36	91.35	0.00
Net Loan-Closing	91.35	0.00	0.00
Average Loan	137.03	45.68	0.00
Rate of Interest-(Fixed)	1.73%	1.73%	1.73%
Interest	2.37	0.79	0.00
Repayment Schedule	7 Equal Half-Yearly Installments- 24.09.2001, 24.03.2002, 24.09.2002 and 24.03.2003		
ING Bank (Tranche B&C IBJ-II replacement)			
Gross Loan -Opening ¹	418.67	418.67	418.67
Cumulative Repayment up to Previous Year	0.00	0.00	418.67
Net Loan-Opening	418.67	418.67	0.00
Repayment during the year	0.00	418.67	0.00
Net Loan-Closing	418.67	0.00	0.00
Average Loan	418.67	209.33	0.00
Rate of Interest-(Floating)	0.8475%	0.8475%	0.8475%
Interest	3.55	1.77	0.00

Repayment Schedule	Bullet- 24.03.2003		
SUMITOMO (Replacement of Exim Bank)			
Gross Loan -Opening ¹	2693.18	2693.18	2693.18
Cumulative Repayment up to Previous Year	1715.54	2205.72	2693.18
Net Loan-Opening	977.64	487.47	0.00
Repayment during the year	490.18	487.47	0.00
Net Loan-Closing	487.47	0.00	0.00
Average Loan	732.56	243.73	0.00
Rate of Interest-(Floating)	0.7825%	0.7825%	0.7825%
Interest	5.73	1.91	0.00
Repayment Schedule	11 Half-Yearly Installments- 18.09.2001, 18.03.2002, 18.09.2002 and 18.03.2003		
IBJ-III (Replacement of Exim Bank)			
Gross Loan -Opening ¹	2202.71	2202.71	2202.71
Cumulative Repayment up to Previous Year	0.00	0.00	2.71
Net Loan-Opening	2202.71	2202.71	2200.00
Repayment during the year	0.00	2.71	490.18
Net Loan-Closing	2202.71	2200.00	1709.83
Average Loan	2202.71	2201.36	1954.92
Rate of Interest-(Fixed)	3.0850%	3.0850%	3.0850%
Interest	67.95	67.91	60.31
Repayment Schedule	10 Half-Yearly Installments- 21.03.2003, 21.09.2003 and 21.03.2004		
IBRD-I			
Gross Loan -Opening ¹	564.15	564.15	564.15
Cumulative Repayment up to Previous Year	75.53	105.56	134.33
Net Loan-Opening	488.61	458.58	429.81
Repayment during the year	30.03	28.77	30.43
Net Loan-Closing	458.58	429.81	399.38
Average Loan	473.60	444.20	414.60
Rate of Interest-(Floating)	6.11%	6.11%	6.11%
Interest	28.94	27.14	25.33
Repayment Schedule	30 Half-Yearly Installments- 01.06.2001, 01.12.2001, 01.06.2002, 01.12.2002, 01.06.2003 and 01.12.2003		
Total Loan			
Gross Loan -Opening	6884.93	6884.93	6884.93
Cumulative Repayment up to Previous Year	2366.15	3146.51	4255.11
Net Loan-Opening	4518.78	3738.42	2629.82
Repayment during the year	780.35	1108.61	520.61
Net Loan-Closing	3738.42	2629.82	2109.21
Average Loan	4128.60	3184.12	2369.51
Rate of Interest	2.7413%	3.1322%	3.6143%
Interest	113.18	99.73	85.64

¹ Amount of loan outstanding as on 31.03.1992 in the transferor books (as per the affidavit filed on 26.03.2003 by the petitioner)

26. IBJ-II (Tranche D), ING Bank (Tranche B&C IBJ-II replacement), SUMITOMO (Replacement of Exim Bank) and IBRD loan carry floating rates of interest. The interest rate stated to be prevailing on 1.4.2001 as per the affidavits filed by the petitioner in the present proceedings have been taken in calculation. Any change/re-setting of the interest rate during the tariff period may be settled mutually by the parties. In case they are unable to do so, either party may approach the Commission.

27. This petition covers various transmission elements with different dates of commercial operation from 1.10.1984 to 1.2.1997. These elements were partly financed from foreign loans i.e. IBJ-II (Tranche D), Commerz Bank (Tranche B&C IBJ-II replacement), ING Bank (Tranche B&C IBJ-II replacement), SUMITOMO (Replacement of Exim Bank) and IBJ-III (Replacement of Exim Bank) loan denominated in JPY and IBRD loan denominated in USD. As allocation of loan is not available for all these elements separately, the exchange rates as given in the petition have been considered.

28. The necessary calculations in support of interest on loan allowed in tariff are appended below:

	(Rs. in lakh)		
	2001-2002	2002-2003	2003-2004
Gross Loan -Opening	12975.57	12975.57	12975.57
Cumulative Repayment upto Previous Year	8123.77	8961.63	10151.94
Net Loan-Opening	4851.80	4013.94	2823.63
Repayment during the year	837.86	1190.31	558.97
Net Loan-Closing	4013.94	2823.63	2264.66
Average Loan	4432.87	3418.78	2544.14
Rate of Interest	2.7413%	3.1322%	3.6143%
Interest	121.52	107.08	91.95

DEPRECIATION

29. 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

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.

30. The petitioner has claimed the depreciation on the capital expenditure in accordance with above principles.

31. In the calculations for tariff allowed, the depreciation has been worked out on the capital expenditure of Rs.37955.29 lakh arrived at as per para 18 above and the rates as prescribed in the notification dated 26.03.2001. For working out cumulative depreciation, the depreciation as per last tariff setting has been considered. The petitioner shall be entitled to depreciation of Rs.1045.49 lakh each year during 2001-02, 2002-03 and 2003-04. The necessary details in support of calculation of depreciation are extracted below:

(Rs. in lakh)

	Cost as on 1.4.2001	FERV on the outstanding foreign loan as on 31.03.2001	Total Cost including FERV	Approved capital cost	Rate of Depreciation	Depreciation
Land	272.00	19.27	291.27		0%	0.00
Building & Other Civil Works	601.00	42.58	643.58		1.80%	11.58
Sub-Station Equipment	27359.00	1938.43	29297.43		2.57%	752.94
Transmission Line	7098.02	502.91	7600.93		3.60%	273.63
PLCC	114.00	8.08	122.08		6.00%	7.32
Total	35444.02	2511.27	37955.29	33062.00		1045.49

ADVANCE AGAINST DEPRECIATION

32. 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:

AAD = Originally scheduled loan repayment amount subject to a ceiling of 1/12th of original loan amount minus depreciation as per schedule.

33. The petitioner has claimed advance against depreciation on the basis of
- (i) 1/12th of gross loan worked out from 50% of the gross block as was admitted in the Ministry of Power tariff notification dated along with capitalisation of FERV claimed,
 - (ii) repayment of actual loans (excluding notional loan arising out of FERV claimed) during the year, and
 - (iii) depreciation as claimed in the petition.

34. For working out Advance Against Depreciation, 1/12th of the notional loan has been considered while repayments of loan as worked out at para 28 above have 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)	1081.30	1081.30	1081.30
Scheduled Repayment of the Loan(s)	837.86	1190.31	558.97
Minimum of the above	837.86	1081.30	558.97
Depreciation during the year	1045.49	1045.49	1045.49
Advance Against Depreciation	0.00	35.81	0.00

OPERATION & MAINTENANCE EXPENSES

35. 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:

- 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.

36. KSEB in their reply has submitted that O&M cost of entire Jeypore-Gazuwaka transmission system and Chandrapur HVDC system is charged on Southern Region, while the O&M cost for this line is to be shared both by the Eastern and Southern regions as per the notification dated 26.3.2001. The petitioner in its rejoinder has clarified that O&M expenses of Jeypore Gazuwaka transmission system have been consolidated in Southern Region, whereas O&M expenditure of Chandrapur HVDC have been consolidated in Western Region. On considering the matter, we do not find any force in the submission made by KSEB. The transmission charges for the inter-regional assets are to be shared by the two contiguous regions as provided in the notification dated 26.3.2001. It is only for calculation of O&M expenses the base as applicable for Southern Region has been considered.

37. 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

38. 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.

39. 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. 25.11 lakh and Rs. 137.56 lakh paid for Southern 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. 200.55 lakh and Rs.146.41 lakh for Southern 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

40. Repair & maintenance expenses as claimed by the petitioner have been considered. It was noted that in case of Southern Region system for the year 1998-99 the increase over the previous year (1997-98) was 86.89%. The petitioner was asked to explain the individual items of expenditure in which variation over the previous year was more than 20%. The petitioner has explained that the excess of 86.89% in the year 1998-99 under "repair and maintenance" head over the previous year was due to major repair of circuit breaker at Cuddapah sub-station and two towers in the Ramagundam- Chandrapur transmission line undertaken during 1998-99. 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.328.79 lakh (20% over and above the "repair and maintenance" expenses for the year 1997-98). 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

41. 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 Southern Regional Transmission System (for short “ the SRTS”) 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 Southern Region. As power charges for the residential colony need to be recovered from the employees, admissibility of power charges in case of the SRTS has been limited to 80% of the total claim.

Insurance

42. 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.

43. 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.

44. 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.

45. 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 SRTS as well as Corporate Office.

Other Expenses

46. In case of the SRTS, the other expenses as claimed by the petitioner have been considered for the calculation. However, 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

47. The details of the recoveries for the SRTS 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 SRTS. 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 SRTS 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 SRTS.

Allocation of Corporate Office Expenses to Various Regions

48. 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.

49. 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 SOUTHERN REGION

(All Figures in Rs. Lakhs)

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	769.63	649.53	1136.39	921.70	1334.83	1333.85	1574.20	1592.55	2211.72	1928.38
Repair & Maintenance	235.50	235.50	246.70	246.70	273.99	273.99	512.07	328.79	404.38	404.38
Power Charges	305.98	244.78	358.13	286.50	415.20	332.16	418.15	334.52	488.85	391.08
Training & Recruitment	18.54	18.54	16.53	16.53	13.13	13.13	7.13	7.13	12.98	12.98
Communications	63.46	63.46	60.08	60.08	73.54	73.54	67.67	67.67	71.27	71.27
Travelling	205.46	205.46	231.33	231.33	288.09	288.09	290.72	290.72	318.89	318.89
Printing & Stationery	18.47	18.47	18.38	18.38	22.87	22.87	22.70	22.70	24.79	24.79
Rent	12.26	12.26	11.38	11.38	14.23	14.23	17.72	17.72	20.80	20.80
Miscellaneous Expenses	185.42	185.42	200.45	200.45	244.80	244.80	272.85	272.85	322.12	322.12
Insurance	7.22	7.22	11.60	11.60	272.68	272.68	158.87	158.87	219.00	219.00
Others	59.61	59.61	41.61	41.61	48.66	48.66	167.97	167.97	401.65	401.65
Corporate Expenses Allocation	454.10	444.48	532.15	261.90	508.85	438.93	485.91	484.84	745.19	602.61
TOTAL	2335.65	2144.74	2864.73	2308.17	3510.87	3356.93	3995.96	3746.33	5241.64	4717.95
Less : Recoveries		14.91		87.92		26.53		21.97		16.24
Net O&M Expenses	2335.65	2129.83	2864.73	2220.25	3510.87	3330.40	3995.96	3724.36	5241.64	4701.71

Method of Normalizing O&M Expenses

50. 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:

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

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

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.

51. 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:

NORMALIZED O&M EXPENSES FOR SOUTHERN REGION

(All Figures in Rs. Lakhs)

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)	2129.83	2220.25	3330.40	3724.36	4701.71						
2	Abnormal O&M expenses	0.00	0.00	0.00	0.00	0.00						
3	Normal O&M expenses (S.No. 1 -S.NO. 2)	2129.83	2220.25	3330.40	3724.36	4701.71						
4	OML (O&M for lines)= 0.7 X S. NO.3	1490.88	1554.17	2331.28	2607.05	3291.20	11274.58					
5	OMS (O&M for substation) = 0.3XS.NO.3	638.95	666.07	999.12	1117.31	1410.51	4831.96					
6	Line length at beginning of the year in Kms.	5578.74	5839.71	5839.71	6034.71	6190.71						
7	Line length added in the year in Kms.	260.97	0.00	195.00	156.00	656.33						
8	Line length at end of the year in Kms.	5839.71	5839.71	6034.71	6190.71	6847.04						
9	LL (Average line length in the Region)	5709.23	5839.71	5937.21	6112.71	6518.88	30117.74					
10	NO. of bays at beginning of the year	66	71	74	76	80						
11	NO. of bays added in the year	5	3	2	4	26						
12	NO. of bays at the end of the year	71	74	76	80	106						
13	BN (Average number of bays in the Region)	68.5	72.5	75.0	78.0	93.0	387.00					
14	AVOMLL(OML/LL)	0.26	0.27	0.39	0.43	0.50	1.851					
15	AVOMBN(OMS/BN)	9.33	9.19	13.32	14.32	15.17	61.328					
16	NOMLL(allowable O&M per unit of line length)			0.3703	0.4073	0.4480		0.4480	0.4749	0.5034	0.5336	0.5656
17	NOMBN(Allowable O&M per bay)			12.2656	13.4921	14.8413		14.8413	15.7318	16.6757	17.6763	18.7368
	NOMLL(as calculated by petitioner)			0.4200				0.5100	0.5400	0.5700	0.6000	0.6400
	NOMBN(as calculated by petitioner)			13.9100				16.8300	17.8400	18.9100	20.0400	21.2400

52. 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.

53. 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).

54. 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)
2528.782	25	1689.8526	2528.782	25	1791.2438	2528.782	25	1898.7184

RETURN ON EQUITY

55. 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.

56. The petitioner has claimed return on the basis of equity as was admitted in Ministry of Power notifications dated 1.12.1998 and 14.5.1999 along with notional equity arising out of FERV claimed. The same methodology has been followed for working out the return on equity. Thus the following amount of equity has been considered in the calculation of return of equity:

(Rs. in lakh)	
Equity as allowed by the Commission vide order dated 17.6.2003 for previous tariff setting	11719.94
Notional Equity arising on account of FERV	1255.63
TOTAL	12975.57

57. On the above basis, the petitioner shall be entitled to return on equity of Rs. 2076.09 lakh each year during the tariff period, calculated @ 16% as per the notification dated 26.3.2001.

INTEREST ON WORKING CAPITAL

58. 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%.

59. The petitioner has claimed the maintenance spares on the basis of maintenance spares allowed by Ministry of Power in its notifications dated 1.12.1998 and 14.5.1999 escalating the same as per weighted price index taking into account 60% of weightage for WPI & 40% of CPI and @6% p.a. for the years 2001-02 to 2003-04 and deducting the 1/5th of the initial capitalized spares therefrom. The petitioner's claim for O & M expenses is based on the petition. The petitioner has further claimed the receivables on the basis 2 months' of annual transmission charges as claimed in the petition.

60. In keeping with the methodology prescribed in the notification dated 26.3.2001, working capital has been worked out. In the calculation, maintenance spares for the year 2001-02 to 2003-04 have been worked out in the same manner as claimed by the petitioner. In the calculation, O&M expenses for working capital has been worked out for 1 month of O&M expenses considered in tariff of the respective year. The receivables have been worked out on the basis 2 months' of annual transmission charges as worked out above.

61. 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)

Escalation for Maintenance Spares	6%			
Spares	406.93			
Less: 1/5 th of Initial Spares	0.00			
Maintenance Spares	406.93	431.34	457.23	484.66
O & M expenses		140.82	149.27	158.23
Receivables		849.40	870.94	881.25
Total		1,421.57	1,477.43	1,524.14
Rate of Interest		11.50%	11.50%	11.50%
Interest		163.48	169.90	175.28

TRANSMISSION CHARGES

62. 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	121.52	107.08	91.95
Interest on Working Capital	163.48	169.90	175.28
Depreciation	1045.49	1045.49	1045.49
Advance against Depreciation	0.00	35.81	0.00
Return on Equity	2076.09	2076.09	2076.09
O & M Expenses	1689.85	1791.24	1898.72
Total	5096.43	5225.62	5287.53

63. 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.

64. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's notification dated 4.4.2001 as extended from time to time. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us. The adjustment of the transmission charges already claimed is also subject to directions of the superior courts.

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

66. This order disposes of Petition No.26/2002.

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 23rd October 2003