

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

CORAM:

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

Petition No.69/2002

In the matter of

Approval of transmission tariff for Ramagundam-Hyderabad transmission line in Southern Region and Chandrapur HVDC back-to-back station (2X500 MW) in Western Region and 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. Madhya Pradesh State Electricity Board, Jabalpur
 2. Maharashtra State Electricity Board, Mumbai
 3. Gujarat Electricity Board, Baroda
 4. Electricity Deptt., Govt of Goa, Goa
 5. Electricity Deptt., Administration of Dadra and Nagar Haveli, Silvassa
 6. Chhatisgarh State Electricity Board, Raipur
 7. Electricity Deptt., Administration of Daman and Diu, Daman
 8. Karnataka Power Transmission Corporation Ltd., Bangalore
 9. Transmission Corporation of Andhra Pradesh, Hyderabad
 10. Kerala State Electricity Board, Thiruvananthapuram
 11. Tamil Nadu Electricity Board, Chennai
 12. Electricity Deptt., Govt. of Pondicherry, Pondicherry
- .. Respondents

The following were present:

1. Shri S. S. Sharma, AGM, PGCIL
2. Shri Prashant Sharma, PGCIL
3. Shri U.K. Tyagi, Chief Manager, PGCIL
4. Shri A.K. Nagpal, PGCIL
5. Shri Pawan Singh, PGCIL
6. Shri C. Kannan, PGCIL
7. Shri Sanjay Mehrotra, PGCIL
8. Shri R.P. Ojha, PGCIL
9. Shri D. Khandelwal, SE (Comm), MPSEB
10. Shri Deepak Shrivastava, EE, MPSEB

**ORDER
(DATE OF HEARING: 21.2.2003)**

The petitioner has filed the present petition for approval of tariff for the following assets for the period 1.4.2001 to 31.3.2004:

- (a) 400 kV S/C line between Ramagundam and Hyderabad and extension of sub-stations at Ramagundam and Hyderabad.
- (b) HVDC back-to-back station (2X500 MW) at Chandrapur between Western and Southern regions.

2. Ministry of Power vide its letter dated 12.11.1993 conveyed the approval of Central Government to the capital investment for setting up Chandrapur HVDC back-to-back station (2X500 MW) and Hyderabad-Ramagundam 400 kV S/C transmission line, including associated sub-station extension, by the petitioner with the following break up of cost:

		(Rs. in crore)
(a)	Hyderabad-Ramagundam S/C single circuit transmission line, including associated sub-station extension	75.07
(b)	HVDC back-to-back station	825.21
Total		900.28

3. The assets were to be commissioned by 11.11.1997, within 48 months from the date of issue of the sanction. The assets have been put under commercial operation from the dates as indicated hereunder:

		Date of Commercial Operation
(a)	400 kV S/C Ramagundam-Hyderabad transmission line with extension of sub-station at Ramagundam and Hyderabad	1.8.1997
(b)	HVDC back-to-back station at Chandrapur	
	Pole I	1.10.1997
	Pole II	1.3.1998

4. Ministry of Power vide its letter 10.1.2000 conveyed its revised sanction for expenditure of the transmission system at a cost of Rs.102859 lakh, including IDC of Rs.7694 lakh, based on first quarter of 1998 price level. According to the petitioner, the completion cost of the assets is as under:

		(Rs. in lakh)
(a)	400 kV S/C Ramagundam-Hyderabad transmission line with extension of sub stations at Ramagundam and Hyderabad	7909.51
(b)	Pole I of HVDC back-to-back station at Chandrapur	47738.99
	Pole II of HVDC back-to-back station at Chandrapur	45411.69
Total		101060.19

5. The petitioner, in the present petition, has sought approval for transmission charges for the years 2001-02, 2002-03 and 2003-04 based on the Commission's notification dated 26.3.2001 (hereinafter referred to as "the notification dated 26.3.2001") as under:

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			HVDC back-to-back station (2X500 MW).		
	2001-2002	2002-2003	2003-2004	2001-2002	2002-2003	2003-2004
Interest on Loan	465.47	241.16	226.28	2594.07	1854.11	1545.14
Interest on Working Capital	39.87	29.21	29.95	262.13	241.21	248.06
Depreciation	238.70	238.70	238.70	3352.37	3352.37	3352.37
Advance Against Depreciation	368.71	0.00	0.00	1116.11	340.64	528.47
Return on Equity	235.22	235.22	235.22	1353.65	1353.65	1353.65
O & M Expenses	148.97	157.08	167.28	423.77	449.19	476.16
Total	1496.94	901.37	897.43	9102.10	7591.17	7503.84

6. In support of its claim for interest on working capital the petitioner has submitted the following details:

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			HVDC back-to-back station (2X500 MW)		
	2001-2002	2002-2003	2003-2004	2001-2002	2002-2003	2003-2004
Spares	84.77	90.67	96.92	729.09	794.87	866.72
O & M expenses	12.41	13.09	13.94	35.31	37.43	39.68
Receivables	249.49	150.23	149.57	1517.02	1265.20	1250.64
Total	346.67	253.99	260.43	2281.42	2097.50	2157.04
Rate of Interest	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%
Interest	39.87	29.21	29.95	262.13	241.21	248.06

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. The capital cost shall include capitalised initial spares for the first 5 years of operation. The notification dated 26.3.2001 further provides that the actual capital expenditure incurred on completion of the project shall be the criterion for fixation of tariff. Where the actual expenditure exceeds the approved project cost, the excesses as approved by the Authority 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 petitioner or its suppliers or contractors. This is subject to the condition that where a transmission services agreement entered into between the Transmission Utility and the beneficiary provides a ceiling on capital expenditure; the capital expenditure shall not exceed such ceiling.

8. The tariff for period up to 31.3.2001 for the assets covered under the present petition was allowed by the Commission vide its order dated 20.8.2002 in petition No 46/2000.

Subsequently, based on the review application (No 145/2002) filed by the petitioner for review of tariff for Chandrapur HVDC back-to-back component, the revised tariff was allowed by Commission vide order dated 31.3.2003 .The following table shows the details of the capital cost related with elements covered under this petition, earlier considered by the Commission:

(Rs in lakh)

Name of the Element	Actual capital cost	Admitted capital cost
400 kV S/C Ramagundam-Hyderabad transmission line with	7909.51	7909.51
HVDC back-to-back station (2X500 MW)	62082.01	62082.01

9. The above capital expenditure already considered by the Commission in petition No.46/2000 read with its order in review application No 145/2002, has, therefore, been adopted as the capital base as on 1.4.2001.

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 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 any additional capital expenditure for the period on or after 1.4.2001 in the present petition. Accordingly, the additional capitalisation has not been considered.

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)

14. The amount of FERV arrived at in the above manner is added by the petitioner to the capital cost as on 1.4.2001 (base capital cost for the tariff period).

15. We have considered the matter. On consideration of the fact that the method up to 31.03.2001 to allow FERV was on repayment of loan and payment of interest on actual basis, we have decided that FERV to be capitalised for adding in the gross block as on 1.4.2001 would be arrived at 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. FERV amount has been calculated in accordance with the above methodology, as per details given as under:

400 kV S/C Ramagundam-Hyderabad transmission line with extension of sub stations at Ramagundam and Hyderabad

(Rs in lakh)

FERV on the outstanding loan as on 31.03.2001	
IBRD	
Outstanding balance as on 31.3.2001 (in USD)	77.51
Exchange Rate as on 31.3.2001	46.88
Exchange Rate as on the date of commercial operation	35.92
FERV on the outstanding loan as on 31.3.2001 (In Rupee terms)	849.51

HVDC back-to-back station (2X500 MW) between Western and Southern region.

(Rs in lakh)

FERV on the outstanding loan as on 31.03.2001		
WEST MERCHANT BANK	Pole-I	Pole-II
Outstanding balance as on 31.3.2001 (in GBP)	117.35	117.35
Exchange Rate as on 31.3.2001	66.99	66.99
Exchange Rate as on the date of commercial operation	58.60	65.11
FERV on the outstanding loan as on 31.3.2001 (In Rs terms.)	984.57	220.62
CREDIT NATIONAL		
Outstanding balance as on 31.3.2001 (in FF)	795.68	795.68
Exchange Rate as on 31.3.2001	6.29	6.29
Exchange Rate as on the date of commercial operation	6.16	6.51
FERV on the outstanding loan as on 31.3.2001 (In Rs. terms)	103.44	-175.05
BANK INDO SUEZ-I & II		
Outstanding balance as on 31.3.2001 (in FF)	524.92	524.92
Exchange Rate as on 31.3.2001	6.29	6.29
Exchange Rate as on the date of commercial operation	6.16	6.51
FERV on the outstanding loan as on 31.3.2001 (In Rs. terms)	68.24	-115.48

17. FERV amount of each of the asset 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)	
	400 kV S/C Ramagundam- Hyderabad transmission line	HVDC back-to- back station (2X500 MW)
Capital expenditure up to 31.3.2001	7909.51	60995.68
FERV up to 31.3.2001	849.51	1086.33
Capital Expenditure up to 31.3.2001	8759.02	62082.01
Additional Capital Expenditure after 31.3.2001	0.00	0.00
Total Capital Expenditure	8759.02	62082.01

18. 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 the petitioner fails to submit the certificate within the stipulated time, no amount on account of FERV would be allowed as pass through in tariff.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

19. As per clause 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 actual debt and equity admitted by the Commission while approving tariff for the previous tariff setting. 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% or 30% should be considered for the purpose of fixation of tariff. This issue has been deliberated in detail in order

dated 20.8.2002 in petition No.46/2000 and passed an order as to why the actual debt-equity ratio has been considered for assets commissioned after 1.4.1997. The respondents have not brought in any new points or facts in the present petition. The same debt-equity ratio, as considered by the Commission in its order dated 20.8.2002 has been maintained for determination of tariff in the present petition. Necessary details in this regard are extracted below:

Name of the Element	Debt-Equity ratio considered
400 kV S/C Ramagundam Hyderabad transmission line	86.78:13.22
HVDC back-to-back station (2X500 MW)	87:13 (Rounded off)

INTEREST ON LOAN

20. As per clause 4.4(a) of the notification dated 26.3.2001, Interest on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the financial package approved by CEA or any independent agency. They have also taken depreciation as repayment for the purpose of calculating interest on loan.

400 kV Ramagundam-Hyderabad transmission line

21. The petitioner has claimed interest on loan in the following manner:

- (i) Closing balance of loans as on 31.3.2001 as was admitted by the Commission in Petition No. 46/2000 has been taken as the opening balance as on 1.4.2001.
- (ii) In case of loans denominated in foreign currency, the interest is worked out in foreign currency and the same has been multiplied with exchange rate as on 31.3.2001.

(iii) Interest on notional loan has been claimed on the basis of (i) Division of FERV into notional loan and equity in the ratio of 50:50, (ii) Depreciation on FERV as repayment during the year, and (iii) Weighted average rate of interest of total outstanding loan as on 1.4.2001.

22. In our calculations, interest on loan has been worked as detailed below:

(i) Gross amount of loan, repayment of loan up to 31.3.2001 and net outstanding loan as on 31.3.2001 as considered by the Commission in its order for determination of annual transmission charges for the period up to 31.3.2001 has been considered.

(ii) Repayments for the years 2001-02 to 2003-04 and rate of interest, etc. of the above loan have been taken as per the loan details submitted by the petitioner vide affidavits dated 5.2.2003, 26.3.2003 and 30.4.2003.

(iii) Notional loan arising out of FERV has been worked out as given in para 19 above.

(iv) Repayments for the years 2001-02 to 2003-04 of the notional loan have been worked out as per the following formula:

Notional net loan at the beginning of the year x (actual repayment of the respective foreign loan / actual net respective foreign loan at the beginning of the year

(v) Rate of interest, etc. of the notional loan has been taken of the respective foreign loan from the loan details submitted by the petitioner vide affidavits dated 5.2.2003, 26.3.2003 and 30.4.2003.

23. The details of calculations in support of notional loan and weighted average rate of interest are contained in the table appended below.

Calculation of Rate of Interest

(Rs in lakh)

Details of Loan	2001-02	2002-03	2003-04
No.of days in the Year	365	365	366
GRID LOAN-III(Ist ISSUE)			
Gross Loan –Opening	14.90	14.90	14.90
Cumulative Repayment upto Previous Year	0.00	14.90	14.90
Net Loan-Opening	14.90	0.00	0.00
Repayment during the year	14.90	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	13.50%	13.50%	13.50%
Interest	1.84	0.00	0.00
Repayment Schedule	Bullet on 28.02.2002		
GRID LOAN-III(IInd ISSUE)			
Gross Loan -Opening	93.10	93.10	93.10
Cumulative Repayment upto Previous Year	0.00	93.10	93.10
Net Loan-Opening	93.10	0.00	0.00
Repayment during the year	93.10	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	9.75%	9.75%	9.75%
Interest	5.22	0.00	0.00
Repayment Schedule	Bullet on 28.10.2001		
GRID LOAN-III(II nd SERIES)			
Gross Loan -Opening	725.00	725.00	725.00
Cumulative Repayment upto Previous Year	725.00	725.00	725.00
Net Loan-Opening	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	16.30%	16.30%	16.30%
Interest	0.00	0.00	0.00
Repayment Schedule	Repaid before 31.03.2001		
GRID LOAN-IV (I TRANCHE)			
Gross Loan -Opening	775.00	775.00	775.00
Cumulative Repayment upto Previous Year	775.00	775.00	775.00
Net Loan-Opening	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	17.07%	17.07%	17.07%
Interest	0.00	0.00	0.00
Repayment Schedule	Repaid before 31.03.2001		

GRID LOAN-IV (II TRANCHE)			
Gross Loan -Opening	1016.00	1016.00	1016.00
Cumulative Repayment upto Previous Year	0.00	1016.00	1016.00
Net Loan-Opening	1016.00	0.00	0.00
Repayment during the year	1016.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	17.84%	17.84%	17.84%
Interest	52.64	0.00	0.00
Repayment Schedule	Bullet on 16.07.2001		
GRID LOAN-V			
Gross Loan -Opening	984.00	984.00	984.00
Cumulative Repayment upto Previous Year	0.00	984.00	984.00
Net Loan-Opening	984.00	0.00	0.00
Repayment during the year	984.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest - SBI-I	15.80%	15.80%	15.80%
Interest	140.14	0.00	0.00
Repayment Schedule	Bullet on 24.02.2002		
IBRD LOAN			
Gross Loan -Opening	3256.06	3256.06	3256.06
Cumulative Repayment upto Previous Year	472.00	643.16	807.17
Net Loan-Opening	2784.06	2612.90	2448.89
Repayment during the year- 1 st June	93.54	80.50	86.60
	2690.52	2532.40	2362.29
Repayment during the year- 1 st December	77.62	83.51	86.75
Net Loan-Closing	2612.90	2448.89	2275.54
Rate of Interest	6.11%	6.11%	6.11%
Interest	163.77	153.86	143.45
Repayment Schedule	01.06.2001, 01.12.2001, 01.06.2002, 01.12.2002, 01.06.2003 & 01.12.2003		
Notional Loan-IBRD			
Gross Loan -Opening	737.22	737.22	737.22
Cumulative Repayment upto Previous Year	0.00	45.32	88.75
Net Loan-Opening	737.22	691.90	648.47
Repayment during the year- 1 st June	24.77	21.32	22.93
	712.46	670.59	625.54
Repayment during the year- 1 st December	20.55	22.11	22.97
Net Loan-Closing	691.90	648.47	602.57
Rate of Interest	6.11%	6.11%	6.11%
Interest	43.37	40.74	37.99
Repayment Schedule	Same as of IBRD Loan		

Total Loan			
Gross Loan -Opening	7601.28	7601.28	7601.28
Cumulative Repayment upto Previous Year	1972.00	4296.48	4503.92
Net Loan-Opening	5629.28	3304.80	3097.36
Repayment during the year	2324.48	207.44	219.25
Net Loan-Closing	3304.80	3097.36	2878.11
Interest	406.98	194.60	181.44

Chandarpur HVDC back-to-back project

24. The interest on loan has been worked as detailed below:

- (a) As pole-wise loan allocation is not available it has been considered on 50:50 basis as considered by the petitioner in FERV calculations, besides exchange rates on the respective date of commercial operation of both the poles as per petition. For subsequent period, average of exchange rates on the respective date of commercial operation have been considered. Year-wise repayment has also been taken as per petition.
- (b) As part repayment of BIS I & II and WMB-I loans has been done before the date of commercial operation of Pole-II, the outstanding amount has been arrived at after taking into consideration the same from the respective gross loan amounts.
- (c) For other loans, the gross amount, repayment up to 31.3.2001 and net outstanding loan as on 31.3.2001 as considered by the Commission in its order for determination of annual transmission charges for the period up to 31.03.2001 has been considered.
- (d) Repayments for the years 2001-02 to 2003-04 and rate of interest, etc. of the above loan has been taken as per the loan details submitted by the petitioner vide affidavits dated 5.2.2003, 26.3.2003 and 30.4.2003.
- (e) Notional loan arising out of FERV has been worked out as given in para 19 above.

- (f) Repayments for the years 2001-02 to 2003-04 of the notional loan have been worked out as per the following formula:

Notional net loan at the beginning of the year x (actual repayment of the respective foreign loan / actual net respective foreign loan at the beginning of the year

- (g) Rate of interest, etc. of the notional loan has been taken of the respective foreign loan from the loan details submitted by the petitioner vide affidavits dated 5.2.2003, 26.3.2003 and 30.4.2003.

25. The detailed calculations in support of notional loan and weighted average rate of interest for are appended below:

(Rs in lakh)			
Details of Loan	2001-02	2002-03	2003-04
No.of days in the Year	365	365	366
GRID LOAN-IV (II TRANCHE)			
Gross Loan -Opening	2105.00	2105.00	2105.00
Cumulative Repayment upto Previous Year	0.00	2105.00	2105.00
Net Loan-Opening	2105.00	0.00	0.00
Repayment during the year	2105.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	17.84%	17.84%	17.84%
Interest	109.06	0.00	0.00
Repayment Schedule	Bullet on 16.07.2001		
GRID LOAN-V			
Gross Loan -Opening	2034.00	2034.00	2034.00
Cumulative Repayment upto Previous Year	0.00	2034.00	2034.00
Net Loan-Opening	2034.00	0.00	0.00
Repayment during the year	2034.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	15.80%	15.80%	15.80%
Interest	289.68	0.00	0.00
Repayment Schedule	Bullet on 24.02.2002		

GRID LOAN-VI			
Gross Loan -Opening	564.00	564.00	564.00
Cumulative Repayment upto Previous Year	0.00	0.00	56.40
Net Loan-Opening	564.00	564.00	507.60
Repayment during the year	0.00	56.40	56.40
Net Loan-Closing	564.00	507.60	451.20
Rate of Interest	13.13%	13.13%	13.13%
Interest	74.05	71.70	64.12
Repayment Schedule	10 Annual Instalments from 06.12.2002		
INDIAN OVERSEAS BANK			
Gross Loan -Opening	3597.65	3597.65	3597.65
Cumulative Repayment upto Previous Year	3597.65	3597.65	3597.65
Net Loan-Opening	0.00	0.00	0.00
Repayment during the year	0.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Rate of Interest	0.00	0.00%	0.00%
Interest	0.00	0.00	0.00
Repayment Schedule	Loan repaid before 31.03.2001,hence details not available in affidavit 30.04.2003.		
SBI-I / Bond XI (Option-II) (Refinancing of SBI-I from Bond XI - Option-II on 7.12.2001)			
Gross Loan -Opening	1127.00	1127.00	1127.00
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	1127.00	1127.00	1127.00
Repayment during the year	0.00	0.00	187.83
Net Loan-Closing	1127.00	1127.00	939.17
Rate of Interest - SBI-I	12.00%		
Rate of Interest - Bond XI -Option-II	9.20%	9.20%	9.20%
Interest	125.30	103.68	98.21
Repayment Schedule	SBI-I - 7 Annual Instalments form 24.03.2003 (refinanced on 07.12.2001) / Bond XI -Option-II (6 Annual Instalments from 07.12.2003)		
WEST MERCHANT BANK-I			
Gross Loan -Opening	23344.70	23344.70	23344.70
Cumulative Repayment upto Previous Year	8827.33	11247.09	13666.86
Net Loan-Opening	14517.37	12097.60	9677.83
Repayment during the year- 18 th May	1209.88	1209.88	1209.88
	13307.48	10887.72	8467.95

Repayment during the year- 18 th November	1209.88	1209.88	1209.88
Net Loan-Closing	12097.60	9677.83	7258.07
Rate of Interest	8.05%	8.05%	8.05%
Interest	1048.04	853.25	658.25
Repayment Schedule	Half Yearly instalments on-18.05.2001, 18.11.2001,18.05.2002, 18.11.2002,18.05.2003 & 18.11.2003		
CREDIT NATIONAL			
Gross Loan -Opening	10081.27	10081.27	10081.27
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	10081.27	10081.27	10081.27
Repayment- 30thJune	0.00	0.00	0.00
	10081.27	10081.27	10081.27
Repayment- 30thSeptember	0.00	0.00	0.00
	10081.27	10081.27	10081.27
Repayment- 30th December	0.00	0.00	0.00
	10081.27	10081.27	10081.27
Repayment- 30th March	0.00	0.00	0.00
Net Loan-Closing	10081.27	10081.27	10081.27
Rate of Interest	3.20%	3.20%	3.20%
Interest	322.60	322.60	322.60
Repayment Schedule	Quareterly instalments from 30.09.2004		
BANK INDO SUEZ-I			
Gross Loan -Opening	9312.96	9312.96	9312.96
Cumulative Repayment upto Previous Year	3255.24	4187.24	5119.25
Net Loan-Opening	6057.72	5125.71	4193.71
Repayment during the year- 11th April	466.00	466.00	466.00
	5591.71	4659.71	3727.70
Repayment during the year- 11th October	466.00	466.00	466.00
Net Loan-Closing	5125.71	4193.71	3261.70
Rate of Interest	8.05%	8.05%	8.05%
Interest	433.48	358.46	283.37
Repayment Schedule	Half Yearly instalments on-11.04.2001, 11.10.2001, 11.04.2002, 11.10.2002, 11.04.2003 & 11.10.2003		
BANK INDO SUEZ- II			
Gross Loan -Opening	911.99	911.99	911.99
Cumulative Repayment upto Previous Year	318.97	410.19	501.42

Net Loan-Opening	593.02	501.80	410.57
Repayment during the year- 11th April	45.61	45.61	45.61
	547.41	456.18	364.96
Repayment during the year- 11th October	45.61	45.61	45.61
Net Loan-Closing	501.80	410.57	319.35
Rate of Interest	8.05%	8.05%	8.05%
Interest	42.44	35.09	27.74
Repayment Schedule	Half Yearly instalments on-11.04.2001, 11.10.2001, 11.04.2002, 11.10.2002, 11.04.2003 & 11.10.2003		
NOTIONAL LOAN-WMB-I			
Gross Loan -Opening	1048.75	1048.75	1048.75
Cumulative Repayment upto Previous Year	0.00	174.81	349.61
Net Loan-Opening	1048.75	873.95	699.14
Repayment during the year- 18 th May	87.40	87.40	87.40
	961.35	786.54	611.74
Repayment during the year- 18 th November	87.40	87.40	87.40
Net Loan-Closing	873.95	699.14	524.33
Rate of Interest	8.05%	8.05%	8.05%
Interest	75.71	61.64	47.55
Repayment Schedule	As per repayment schedule of WMB-I		
NOTIONAL LOAN-CN			
Gross Loan -Opening	-62.32	-62.32	-62.32
Cumulative Repayment upto Previous Year	0.00	0.00	0.00
Net Loan-Opening	-62.32	-62.32	-62.32
Repayment- 30th June	0.00	0.00	0.00
	-62.32	-62.32	-62.32
Repayment- 30th September	0.00	0.00	0.00
	-62.32	-62.32	-62.32
Repayment- 30th December	0.00	0.00	0.00
	-62.32	-62.32	-62.32
Repayment- 30th March	0.00	0.00	0.00
Net Loan-Closing	-62.32	-62.32	-62.32
Rate of Interest	3.20%	3.20%	3.20%
	-1.99	-1.99	-1.99
Interest			
Repayment Schedule	As per repayment schedule of CN		

NOTIONAL LOAN-BIS-I & II			
Gross Loan -Opening	-41.11	-41.11	-41.11
Cumulative Repayment upto Previous Year	0.00	-6.32	-12.65
Net Loan-Opening	-41.11	-34.79	-28.46
Repayment during the year- 11th April	-3.16	-3.16	-3.16
	-37.95	-31.62	-25.30
Repayment during the year- 11th October	-3.16	-3.16	-3.16
Net Loan-Closing	-34.79	-28.46	-22.14
Rate of Interest	8.05%	8.05%	8.05%
Interest	-2.94	-2.43	-1.92
Repayment Schedule	11.04.2001, 11.10.2001,11.04.2002, 11.10.2002,11.04.2003 & 11.10.2003		
Total Loan			
Gross Loan -Opening	54023.88	54023.88	54023.88
Cumulative Repayment upto Previous Year	15999.18	23749.66	27417.54
Net Loan-Opening	38024.70	30274.22	26606.34
Repayment during the year	7750.48	3667.88	3855.71
Net Loan-Closing	30274.22	26606.34	22750.63
Interest	2515.42	1801.99	1497.93

26. The reasons for difference in interest on loan is on account of the following:

(i) Interest on Foreign loan

Interest on foreign loan worked out in foreign currency and multiplying the same with exchange rate as on 31.3.2001 in the petition against worked out in foreign currency and multiplying the same with exchange rate as on the date of commercial operation in the calculations considered by us.

(ii) Notional Loan

(a) Division of FERV into notional loan and equity in the ratio of 50:50 in the petition against actual debt-equity ratio considered in the calculations.

(b) Repayment- Depreciation on FERV in the petition against depreciation in proportion to repayment of Foreign loan in the calculations.

- (c) Rate of interest- Weighted average rate of interest of total outstanding loans as on 1.4.2001 in the petition against rate of interest on foreign loans in the calculations.

DEPRECIATION

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

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

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

- (iii) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.
- (iv) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro-rata basis.
- (v) Depreciation against assets relating to environmental protection shall be allowed on case-to-case basis at the time of fixation of tariff subject to the condition that the environmental standards as prescribed have been complied with during the previous tariff period.

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

29. Based on the provisions of the notification dated 26.3.2001, the depreciation for individual items of capital expenditure has been calculated on the capital cost for each of the assets given at para 17 above at the rates as prescribed in that notification. While approving depreciation component of tariff, the weighted average depreciation rate has been worked out. For working out cumulative depreciation, the depreciation as earlier considered by the Commission for the previous tariff setting has been taken into consideration. The break up of the capital cost has been considered as per the details furnished by the petitioner.

30. In the calculation of depreciation for Chandrapur HVDC back-to-back project, depreciation has been worked out on the capital cost after excluding ODA grant component as per decision of the Commission in review petition No 145/2002 in petition No 46/2000.

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

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line				HVDC back-to-back station (2X500 MW).			
		2001-02	2002-03	2003-04		2001-02	2002-03	2003-04
Rate of Depreciation	2.75				3.53%			
Depreciable Value	7883.12				55873.81			
Remaining Depreciable Value		6244.03	5610.59	5371.90		40485.13	35983.14	32315.26
Depreciation		238.69	238.69	238.69		2194.04	2194.04	2194.04

32. The differences between the petitioner's claim and the depreciation allowed are due to
- (i) Depreciation on the ODA grant component of Chandrapur HVDC back-to-back station has not been considered while the petitioner has claimed the same in the petition.
 - (ii) Allocation of FERV to transmission line, sub-station and PLCC only in the petition against all the heads of gross block in proportion to their ratio to the total gross block.

ADVANCE AGAINST DEPRECIATION

33. 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 $1/12^{\text{th}}$ of original loan amount minus depreciation as per schedule.

34. The petitioner has claimed Advance Against Depreciation in the following manner:

35. For working out Advance Against Depreciation, $1/12^{\text{th}}$ of the notional loan has been considered while repayment of loan as worked out above has been taken as repayment of the loan during the year. Similarly, depreciation allowed as per para 32 above has been considered. The petitioner is entitled to Advance Against Depreciation as calculated below:

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			HVDC back-to-back station (2X500 MW).		
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	633.44	633.44	633.44	4501.99	4501.99	4501.99
Scheduled Repayment of the Loan(s)	2324.48	207.44	219.25	7750.48	3667.88	3855.71
Minimum of the above	633.44	207.44	219.25	4501.99	3667.88	3855.71
Depreciation during the year	238.69	238.69	238.69	2194.04	2194.04	2194.04
Advance Against Depreciation	394.75	0.00	0.00	2307.95	1473.84	1661.67

36. The differences between the petitioner's claim and Advance Against Depreciation allowed are due to

(i) While taking 1/12th of the gross loan, the petitioner has considered Foreign loan in foreign currency and multiplied with exchange rate as on 31.3.2001 whereas in our calculations exchange rate as on the date of commercial operation has been considered.

(ii) Division of FERV into notional loan and equity in the ratio of 50:50 in the petition against actual debt-equity ratio considered in the calculations.

(iii) Repayment of foreign loan in foreign currency multiplying with exchange rate as on 31.3.2001 in the petition against exchange rate as on the date of commercial operation in the calculations.

(iv) Repayment of notional loan not been considered in the petition, while it has been considered in our calculations.

OPERATION & MAINTENANCE EXPENSES

37. 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:

O&M expenses per Unit of the line length in Kms (OMLL) =

Expenses for lines (OML)/Average line length in Kms (LL)

O&M expenses for sub-stations (OMBN) = O&M expenses for substations (OMB)/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.

38. The assets forming part of Chandrapur HVDC back-to-back are inter-regional assets, being common to Western and Southern Regions. Therefore, O&M expenses for these assets have been calculated with reference to O&M charges applicable to Western Region. The Ramagundam-Hyderabad transmission line is exclusive to Southern Region. Accordingly, O&M charges as applicable for Southern Region have been considered for these assets.

39. Based on the methodology for computation of O&M expenses specified in the notification dated 26.3.2001, the Commission has computed O&M charges per ckt km (NOMLL) and per bay (NOMB) for Western Region and Southern Region in other petitions. These are extracted below for both the regions:

NORMALIZED O&M EXPENSES FOR WESTERN REGION

(Rs. in Lakh)

S. NO.	Items	1995-96	1996-97	1997-98	1998-99	1999-2000	Total for five years 95-96 to 99-00	1999-00	2000-01	2001-02	2002-03	2003-04
1	Total O&M expenses(Rs. Lakhs)	1116.94	1107.24	2230.12	3136.76	3905.44						
2	Abnormal O&M expenses	0.00	0.00	0.00	0.00	0.00	0.00					
3	Normal O&M expenses (S.No. 1 - S.NO. 2)	1116.94	1107.24	2230.12	3136.76	3905.44						
4	OML (O&M for lines)= 0.7 X S. NO.3	781.86	775.07	1561.08	2195.73	2733.81	8047.55					
5	OMS (O&M for substation) = 0.3XS.NO.3	335.08	332.17	669.03	941.03	1171.63	3448.94					
6	Line length at beginning of the year in Kms.	4520.00	5322.00	5322.00	7668.00	7681.00						
7	Line length added in the year in Kms.	802.00	0.00	2346.00	13.00	1487.00						
8	Line length at end of the year in Kms.	5322.00	5322.00	7668.00	7681.00	9168.00						
9	LL (Average line length in the Region)	4921.00	5322.00	6495.00	7674.50	8424.50	32837.00					
10	NO. of bays at beginning of the year	53	53	54	101	102						
11	NO. of bays added in the year	0	1	47	1	15						
12	NO. of bays at the end of the year	53	54	101	102	117						
13	BN (Average number of bays in the Region)	53.0	53.5	77.5	101.5	109.5	395.00					
14	AVOMLL(OML/LL)	0.16	0.15	0.24	0.29	0.32	1.155					
15	AVOMBN(OMS/BN)	6.32	6.21	8.63	9.27	10.70	41.135					
16	NOMLL(allowable O&M per unit of line length)			0.2311	0.2542	0.2796		0.2796	0.2964	0.3142	0.3330	0.3530
17	NOMBN(Allowable O&M per bay)			8.2269	9.0496	9.9546		9.9546	10.5519	11.1850	11.8561	12.5675
18	NOMLL(as calculated by petitioner)			0.28				0.34	0.36	0.38	0.40	0.41
19	NOMBN(as calculated by petitioner)			10.06				12.17	12.90	13.67	14.49	15.36

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

40. 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 the respective orders for computation of normative values.

41. 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).

42. 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)
400 kV S/C Ramagundam-Hyderabad transmission line	195	2	131.512	193	2	139.403	195	2	141.767
HVDC back-to-back station (2X500 MW).	0	31	346.735	0	31	367.539	0	31	389.591

RETURN ON EQUITY

43. In accordance with the notification dated 26.3.2001, the petitioner is entitled to return on equity at the rate of 16% per annum. For the purpose of tariff, equity as considered for the previous tariff period has been considered. On the above basis, the petitioner shall be entitled to return on equity each year during the tariff period as under:

(Rs in lakh)

Name of the Element	Amount of Equity	Return on Equity
400 kV S/C Ramagundam- Hyderabad transmission line	1157.74	235.22
HVDC back-to-back station (2X500 MW).	8058.13	1289.30

44. The primary reason for the difference between equity on which ROE is worked out and equity claimed in the petition are the division of FERV into notional loan and equity in the ratio of 50:50 by the petitioner against actual debt-equity ratio considered by in the calculation, besides revision in equity due to revision in loan amount for the period prior to 1.4.2001.

INTEREST ON WORKING CAPITAL

45. 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%.

46. 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 years 2001-02 to 2003-04 have been worked out on the basis of capital expenditure up to 31.3.2001 allowed by the Commission earlier, and after deduction of 1/5th of the initial capitalised spares therefrom.

This has been escalated up to 2000-01 as per respective WPI/CPI and thereafter the same has been further escalated @ 6% per annum for the tariff period 2001-02 to 2003-04. 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 by Madhya Pradesh State Electricity Board. The detailed calculations in support of interest on Working Capital are as under:

Interest on Working Capital

(Rs. In lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			HVDC back to back station (2X500 MW)		
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Spares	83.94	88.98	94.32	703.00	745.19	789.90
O & M expenses	10.96	11.62	12.31	28.89	30.63	32.47
Receivables	232.47	130.76	130.06	1484.73	1226.16	1211.06
Total	327.37	231.35	236.69	2,216.63	2,001.97	2,033.43
Rate of Interest	11.50%	11.50%	11.50%	11.50%	11.50%	11.50%
Interest	37.65	26.61	27.22	254.91	230.23	233.84

TRANSMISSION CHARGES

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

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			HVDC back to back station (2X500 MW)		
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Interest on Loan	406.98	194.60	181.44	2515.42	1801.99	1497.93
Interest on Working Capital	37.65	26.61	27.22	254.91	230.23	233.84
Depreciation	238.69	238.69	238.69	2194.04	2194.04	2194.04
Advance Against Depreciation	394.75	0.00	0.00	2307.95	1473.84	1661.67
Return on Equity	185.24	185.24	185.24	1289.30	1289.30	1289.30
O & M Expenses	131.51	139.40	147.77	346.74	367.54	389.59
Total	1394.81	784.54	780.35	8908.36	7356.94	7266.38

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

49. The petitioner has already billed 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.

50. The transmission charges approved by us in respect of Ramagundam-Hyderabad transmission line shall be included in the regional transmission tariff for Southern Region and those in respect of Chandrapur HVDC back-to-back project shall be included in the regional transmission tariff for Southern Region and Western Region and shall be shared by the regional constituents in accordance with the notification dated 26.3.2001.

51. This order disposes of Petition No.69/2002.

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

**Sd/-
(ASHOK BASU)
CHAIRMAN**

New Delhi dated the 19th July 2004