

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. Shri Ashok Basu, Chairman,
2. Shri G.S. Rajamani, Member
3. Shri K.N.Sinha, Member

Petition No.46/2002

In the matter of

Petition for approval of tariff for Kakrapar Transmission System in Western Region for the period 1.4.2001 to 31.3.2004.

And in the matter of

Power Grid Corporation of India Ltd.
Vs

.... Petitioner

1. Madhya Pradesh State Electricity Board, Jabalpur
2. Maharashtra State Electricity Board, Mumbai
3. Gujarat Electricity Board, Vadodara
4. Electricity Department, Govt of Goa, Panaji, Goa
5. Electricity Department, Admn. of Dadra and Nagar Haveli, Silvassa
6. Chhattisgarh State Electricity Board, Raipur
7. Electricity Department, Admn. Of Daman & Diu, Daman**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: 18.3.2003)

In this petition, the petitioner, Power Grid Corporation of India Ltd has sought approval for tariff in respect of the Kakrapar Transmission System (hereinafter referred to as “the Transmission System”), in Western 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. The Transmission System for evacuation of power from Kakrapar Atomic Power Project in Western Region was approved by Central Government in Department Atomic Energy vide letter dated 24.1.1991 at an estimated cost of Rs.5700.00 lakh. The implementation of the Transmission System was commenced by Nuclear Power Corporation, but was subsequently completed by the petitioner. The scope of work included in the transmission and the dates of commercial operation of the respective lines are as stated below:

- | | |
|---|-------------|
| a) 220 kV Kakrapar Baruch line with associated bays | - 1.12.1992 |
| b) 220 kV Kakrapar-VAV line with associated bays | - 1.12.1992 |
| c) 220 kV Kakrapar-Vapi line with associated bays | - 1.08.1993 |

3. The tariff for the transmission system was notified by Ministry of Power vide its notification dated 14.5.1999 at a cost of Rs.4971.00 lakh. The petitioner in the present petition has sought approval for transmission charges as under:

(Rs. in lakh)			
Transmission Tariff	2001-2002	2002-2003	2003-2004
Interest on Loan	79.42	67.41	55.40
Interest on Working Capital	26.77	26.24	26.90
Depreciation	133.01	133.01	133.01
Advance against Depreciation	59.79	0.00	0.00
Return on Equity	327.36	327.36	327.36
O & M Expenses	259.86	274.14	288.72
Total	886.21	828.16	831.39

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

CAPITAL COST

5. 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. As already noticed, the tariff for the Transmission System was notified by Ministry of Power vide its notification dated 14.5.1999 by considering capital cost of Rs. 4971.00 lakh. Therefore, for the purpose of present petition, the capital cost as considered by Ministry of Power has been adopted.

ADDITIONAL CAPITALISATION

6. 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.

7. The petitioner has not claimed any additional capital expenditure for the period after 01.04.2001 in the petition. Accordingly, the question of considering additional capitalisation does not arise.

EXTRA RUPEE LIABILITY

8. The petitioner has not claimed FERV, as there are no foreign currency loans. Accordingly, FERV is not being allowed.

SOURCES OF FINANCING. DEBT – EQUITY RATIO

9. 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. 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. In the present case, the assets were commissioned

before 01.4.1997 and Ministry of Power while notifying tariff vide notification dated 14.5.1999 had considered debt and equity on notional basis in the ratio of 50:50 as on 1.4.1997 in view of the notification dated 16.12.1997. Therefore, the debt-equity ratio of 50:50 has been considered for determination of tariff in the present petition.

INTEREST ON LOAN

10. 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.

11. We have critically examined the methodology adopted by the petitioner and observe that it does not capture implications of converting the actual debt and equity into notional debt and equity which is adopted for the purposes of computing the tariff. It (the methodology) manifests itself into a mis-match between repayment period as would work out notionally and the actual repayment period. Sound financial principles demand that the rate of interest and the repayment period must be same in the notional package as that of the actual package. In the instant case, the notional repayment period exceeds/falls short the actual repayment period. To overcome this problem, the Commission pro-rates repayment of notional loan keeping the repayment period same as that of the actual loan so that the notional and actual loans are liquidated in the same time frame. The interest on loan is, thus, worked out as detailed below :

- (a) Closing balance of the notional loan as on 31.3.2001 is taken as the opening balance as on 1.4.2001.

(b) The repayment for the years 2001-02 and 2002-03 and 2003-04 of the above notional loan is worked out as per the following formula or the actual repayment during the year, whichever is higher.

$$\frac{\text{Actual repayment during the year} \times \text{normative net loan at the beginning of the year}}{\text{Actual net loan at the beginning of the year.}}$$

(c) By applying the actual rate of interest.

12. Based on the above methodology, repayments of loan during 2001-2002 has been arrived at Rs. 946.41 lakh and has been considered. The loan gets liquidated during 2001-02 and as such no repayments during 2002-03 and 2003-04 need to be considered.

13. On the basis of actual rate of interest on actual average loans based on information available in the petition and the loan allocation details, the rate of interest on loan has been arrived at. The details of calculation for weighted average rate of interest on loan are given below:

Calculation of weighted average rate of Interest

(Rs. in Lakh)

Details of Loan	2001-02	2002-03	2003-04
Bond-I (Issue-III)			
Gross Loan -Opening	187.80	187.80	187.80
Cumulative Repayment upto Previous Year	0.00	187.80	187.80
Net Loan-Opening	187.80	0.00	0.00
Repayment during the year	187.80	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	93.90	0.00	0.00
Rate of Interest	9.00%	9.00%	9.00%
Interest	8.45	0.00	0.00
Repayment Schedule-Bullet on	10.03.2002		
Bond-III Series (Iind)			
Gross Loan -Opening	4.31	4.31	4.31
Cum.Repayment upto Pre. Year	0.00	0.00	0.00
Net Loan-Opening	4.31	0.00	0.00
Repayment	4.31	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	2.16	0.00	0.00
Rate of Interest	9.75%	9.75%	9.75%
Interest	0.21	0.00	0.00
Repayment Schedule-Bullet on	28.10.2001		
Bond-III Series (Ist)			
Gross Loan -Opening	0.69	0.69	0.69
Cum.Repayment upto Pre. Year	0.00	0.00	0.00
Net Loan-Opening	0.69	0.00	0.00
Repayment	0.69	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	0.35	0.00	0.00
Rate of Interest	13.50%	13.50%	13.50%
Interest	0.05	0.00	0.00
Repayment Schedule-Bullet on	28.02.2002		
Total Loan			
Gross Loan -Opening	192.80	192.80	192.80
Cumulative Repayment upto Previous Year	0.00	187.80	187.80
Net Loan-Opening	192.80	0.00	0.00
Repayment during the year	192.80	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	96.40	0.00	0.00
Rate of Interest	9.03%	0.00%	0.00%
Interest	8.71	0.00	0.00

14. Based on the above, the petitioner is entitled to interest as under:

(Rs. in lakh)

Interest on Loan	2001-02	2002-03	2003-04
Gross Loan –Opening	2046.00	2046.00	2046.00
Cumulative Repayment up to Previous Year	1099.59	2046.00	2046.00
Net Loan-Opening	946.41	0.00	0.00
Repayment during the year	946.41	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00
Average Loan	473.21	0.00	0.00
Rate of Interest	9.03%	0.0000%	0.0000%
Interest	42.74	0.00	0.00

DEPRECIATION

15. 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.

16. It is noted that the petitioner has claimed an amount of Rs 133.01 lakhs as depreciation for the years 2001-02, 2002-03 and 2003-04. In other words, the petitioner has used a constant rate of depreciation throughout the period of tariff. Normally this is true, as the depreciation rate should remain constant over the useful life of any asset. However, when depreciation is used as a source for repayment of loan, and accelerated depreciation including advance against depreciation, if any, has been charged in the tariff, the depreciation should come down after the loan has been repaid fully. In such a situation, it would be a function of the balance useful life of the asset and the depreciation amount yet to be recovered. In the instant case, the loan gets fully repaid in the year 2001 – 02. Therefore, the depreciation should get reduced from that year. Accordingly, the amount of depreciation for the years 2002-03 and 2003-04 and beyond should be less than the amount of depreciation for the year 2001-02. This, however, is not reflected in the tariff proposal filed by the PGCIL.

17. The depreciation for the year 2001-02 would be as under:

(Rs in Lakh)						
Item of Work	Cost of the work as on 31.3.2001	FERV as on 31.03.2001	Total cost including FERV	Approved Capital cost	Prescribed rate of Depreciation in %	Amount of depreciation
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Land	0.00	0.00	0.00	Break-up not furnished by the petitioner	0.00	0.00
Building and other Civil works	0.00	0.00	0.00		1.80	0.00
Sub-station equipment	4586.31	0.00	4586.31		2.57	117.87
Transmission line	331.02	0.00	331.02		3.60	11.92
PLCC	53.67	0.00	53.67		6.00	3.22
Total	4971.00	0.00	4971.00	5700.00		133.01
Thus, the amount of depreciation for the year 2001-02 would be Rs $(2.68 \times 4971.00)/100 = 133.01$						

18. For computing the depreciation amount for the years 2002-03 and 2003-04, the remaining useful life of the assets has to be first worked out. The Transmission System was declared under commercial operation as under:

Sl.No.	Name of the asset	Date of commercial operation
1.	220 kV Kakrapar - Baruch line with associated bays	1.12.1992
2.	220 kV Kakrapar - VAV line with associated bays	1.12.1992
3.	220 kV Kakrapar - Vapi line with associated bays	1.08.1993

19. It can be said that the assets have been in use for about 9 years as on 1.4.2001. Considering the useful life of various components of the system, as per notification dated 26.3.2001, and completion cost of the assets as on 31. 3.2001, the weighted average life of the system would be:

Sl. No.	Name of the asset	Life in years	Completion cost as on 31.3.2001 (in Rs Lakhs)
1.	Transmission lines at 66 KV and above	35	4586.31
2.	Sub-station equipment	25	331.02
3.	Communication equipment (PLCC)	15	53.67
Therefore, weighted average life of the system = $(4586.31 \times 35 + 331.02 \times 25 + 53.67 \times 15) / (4586.31 + 331.02 + 53.67) = 34.12$ years Say 34 years			
The balance useful life = $(34 - 9)$ years,			25 years ⁽¹⁾
Cumulative depreciation up as on 1.4.2001 (As per FORM - 4 given in the petition)			Rs 1978.59 lakh ⁽²⁾
Depreciation allowed by the Commission for the year 2001-02			Rs 133.01 lakh
Advance Against Depreciation allowed by the Commission ⁽³⁾			Rs 37.49 lakh
Therefore, total depreciation up to 31.3. 02			Rs 2149.09 lakh
Remaining useful life after 1.4.2002			24 years
Allowable depreciation (90% of Rs 4971.00 lakhs)			Rs 4473.90 lakh
Balance depreciation to be paid during the remaining useful life = $(4473.90 - 2149.09)$			Rs 2324.81 lakh
Yearly depreciation to be paid during the remaining useful life = $(2324.81/24)$			Rs 96.87 lakh

⁽¹⁾ As on 1.4.2001

⁽²⁾ As per FORM – 4 given in the petition, this has been shown as Rs 1979.00 lakh. However, on checking found a calculation mistake and has corrected the number accordingly.

⁽³⁾ Para 22 refers for details.

ADVANCE AGAINST DEPRECIATION

20. 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.

21. The petitioner has claimed an amount of Rs.59.79 lakh as Advance Against Depreciation for the year 2001-02 on the basis of :

- (i) 1/12th of gross loan worked out as 50% of the gross block admitted by the Commission in the petition of previous tariff setting,
- (ii) Repayment of loans during the year, and
- (iii) depreciation as claimed in the petition.

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

(Rs. in lakh)			
Advance Against Depreciation	2001-02	2002-03	2003-04
1/12th of Gross Loan(s)	170.50	170.50	170.50
Scheduled Repayment of the Loan(s)	946.41	0.00	0.00
Minimum of the above	170.50	0.00	0.00
Depreciation during the year	133.01	96.87	96.87
Advance Against Depreciation	37.49	0.00	0.00

OPERATION & MAINTENANCE EXPENSES

23. 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.

24. 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

25. 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.

26. 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. 19.98 lakh and Rs 37.32 lakh were paid for Western 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. 115.14 lakh and Rs. 86.86 lakh for Western Region and Rs. 297.13 lakh & 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

27. The petitioner has submitted that the increase of 160.84 % in Repair & Maintenance expenses in 1997-98 (Rs 451.01 lakh) over the previous year (Rs 172.91 lakh) is due to overhauling of circuit breaker at Bhilai and pile foundation works at Kawas and Kakrapar transmission system. 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 1997-98 have been limited to Rs 207.49 lakhs (20% over and above the repair and maintenance expenses for the year 1996-97) for the purpose of normalisation. In the next year, that is, 1998-99, the petitioner has claimed even higher Repair and

Maintenance expenses (Rs 539.84 lakhs) than in 1997-98. Thus, the repair and maintenance expenses in 1998-99 are also substantially high. Hence, in this year also the increase has been limited to Rs 248.99 lakhs (20% over the expenses considered for normalisation in the previous year, 1997-98) for the purpose of normalisation. The abnormal increase of repair and maintenance expenses during 1997-98 and 1998-99 is evident from the O&M expenses of Rs. 304.10 lakh for the subsequent year, 1999-2000. 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

28. In case of Corporate Office, the power charges as claimed by the petitioner have been considered in the calculation of O&M expenses. In case of Western Regional Transmission System (WRTS) the petitioner was asked to submit break up of power charges between substation facilities and residential colonies. The petitioner vide affidavit dated 12th February 2003 has submitted the break up. Since, power charges for residential quarters in the colony should be recovered from the employees, such charges amounting to Rs 32.42 lakh, Rs 52.04 lakh, Rs 69.46 lakh, Rs 83.28 lakh and Rs 84.6 lakh for the five years from 1995-96 to 1999-2000 have been deducted from the total power charges claimed by the petitioner.

Insurance

29. 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.

30. 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.

31. 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.

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

Other Expenses

33. In case of WRTS, following items claimed under 'provision' have not been considered admissible:

- (a) Amount of Rs 15.27 lakh claimed by the petitioner in 1995-96 for loss of stores, amount of Rs 9.06 lakh and Rs 49 lakh in 1995-96 and 1996-97 on account of writing off of advance pending since 1998-99. Since, these items are controllable by the petitioner and reflect the managerial efficiency of the petitioner, the provisions made on this account have not been considered as admissible for reimbursement.

- (b) Amount of Rs 0.11 lakh, Rs. 0.96 lakh and Rs 0.14 lakh as 'others' for the years 1997-98, 1998-99 and 1999-2000. In spite of the direction by the Commission to furnish the items covered in the provisions, the petitioner has lumped some provisions under the head 'others'. In the absence of details, this amount has not been considered admissible.
- (c) Amount of Rs. 100.82 lakh for restoration of Gujarat Electricity Board lines after cyclone claimed in 1999-2000. During the hearing, the petitioner explained that the job was undertaken at the instance of Ministry of Power who had since directed that the amount be recovered from the beneficiaries through O&M charges. The Commission vide its order dated 21.03.2003 had directed that the entire correspondence exchanged with Ministry of Power on the subject may be placed on record. However, the petitioner vide affidavit dated 03.04.2003 has reiterated earlier statement but has not provided any correspondence in this regard to substantiate its claim. During the hearing, Madhya Pradesh State Electricity Board had stated that this amount should be recovered from Gujarat Electricity Board. The petitioner has also stated that attempts were made to recover this amount from Gujarat Electricity Board but have not yielded the result and hence the petitioner had no option but to include it in O&M expenses. The efforts made by petitioner in the national crisis, though commendable, the expenditure on that account cannot be charged to other beneficiaries. Hence, this amount has not been considered as admissible for the purpose of normalisation.

34. The petitioner has claimed amount of Rs. 188.12 lakhs on account of writing off of TOD meters. The Commission vide its order dated 21.03.2003 had directed the petitioner to confirm that this amount figured in the profit & loss account. The petitioner, vide affidavit dated 03.04.2003 has confirmed the same. Since these meters have become obsolete due to technological changes and also have lost relevance after installation of Special Energy Meters, this amount has been admitted.

35. In case of Corporate Office, the following expenses have not been admitted for reimbursement:

- (a) Donation of Rs. 0.05 lakh, Rs. 30 lakh, Rs. 34.78 lakh and Rs. 600.03 lakh for the years 1995-96, 1996-97, 1898-99 and 1999-2000, as these donations are not related to transmission business. The expenditure on account of the donations need be borne by the petitioner out of other profits of the corporation.
- (b) Provisions of Rs. 1107.61 lakh, Rs. 385.8 lakh and Rs. 0.27 lakh for the year 1996-97, 1997-98 and 1999-2000. These provisions were made for the loss of stores in Western Region and North Western Region, for bad and doubtful debt in Northern Region and for shortage of store in North Western Region. The petitioner has also stated that provision of loss of store in Western Region (Rs 863.16 lakh in 1996-97) and provision of bad and doubtful debt in Northern Region (Rs 385.80 lakh in 1997-98) were written back during subsequent years in the regional books of account. In view of this, the petitioner has submitted that these expenses need not be considered while fixing the O&M of the

respective regions. As all these items are controllable by the petitioner and reflect the managerial efficiency. However, an amount of Rs. 11.14 lakh on account of fire at the corporate office in 1998-99 has been considered as admissible under the head provisions.

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

Recoveries

36. The details of the recoveries for the ERTS and the Corporate Office were furnished by the petitioner vide affidavit dated 6th February 2003. The petitioner in the aforesaid affidavit also furnished the "complete details" of the recoveries for the WRTS. 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 WRTS as well as Corporate Office. Similarly, electricity charges recovered/recoverable from employees residential buildings and other residential buildings have not been considered under the head "recovery" as the power charges for colony consumption have been deducted in case of the ERTS.

Allocation of Corporate Office Expenses to Various Regions

37. 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.

38. 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 WESTERN REGION

(Rs. in lakh)

Items	1995-96		1996-97		1997-98		1998-99		1999-2000	
	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for	As per Petitioner	As allowed for
Employee Cost	382.32	320.51	462.49	389.89	746.85	749.88	902.00	918.19	1398.13	1241.98
Repair & Maintenance	136.86	136.86	172.91	172.91	451.01	207.49	539.84	248.99	304.10	304.10
Power Charges	121.80	89.38	181.78	129.76	264.59	195.13	453.50	370.22	510.49	425.89
Training & Recruitment	7.88	7.88	9.54	9.54	11.57	11.57	13.29	13.29	11.57	11.57
Communications	36.05	36.05	45.36	45.36	63.54	63.54	70.98	70.98	57.23	57.23
Travelling	94.16	94.16	106.05	106.05	167.95	167.95	209.26	209.26	225.31	225.31
Printing & Stationery	6.18	6.18	7.93	7.93	11.60	11.60	14.93	14.93	16.30	16.30
Rent	3.71	3.71	3.61	3.61	4.05	4.05	3.88	3.88	6.63	6.63
Miscellaneous Expenses	96.08	96.08	110.20	110.20	156.49	156.49	236.05	229.69	243.63	243.63
Insurance	5.25	5.25	7.67	7.67	187.71	187.71	246.86	246.86	291.47	291.47
Others	91.55	67.22	84.45	35.45	77.16	77.05	68.45	67.49	341.11	240.15
Corporate Expenses Allocation	261.52	255.98	188.96	93.00	470.19	405.58	764.75	763.07	1075.12	869.41
TOTAL	1243.36	1119.26	1380.95	1111.37	2612.71	2238.05	3523.79	3156.86	4481.09	3933.67
Less : Recoveries		2.32		4.13		7.93		20.10		28.23
Net O&M Expenses	1243.36	1116.94	1380.95	1107.24	2612.71	2230.12	3523.79	3136.76	4481.09	3905.44

Method of Normalizing O&M Expenses

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

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

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

$$5 \quad i = 1995-1996 \mid BN_i \mid$$

Where:

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

OML_i and OMS_i are O&M expenses for the lines and for the sub-stations for the 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.

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

NORMALIZED O&M EXPENSES FOR 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	99-00	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

Reason for difference in the normative values calculated by us and by the petitioner

O&M cost per km.: 85% of the difference is due to deductions of non-prudent expenses, 9% is due to error in formula and 6% is due to round-off errors in the petitioner's calculation.

O&M cost per bay: 85% of the difference is due to deductions of non-prudent expenses and 15% is due to error in formula.

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

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

43. 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)
468	6	214.150	468	6	226.999	468	6	240.619

RETURN ON EQUITY

44. 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 of Rs. 2046.00 lakh being 50% of value of Net Fixed Assets as on 1.4.1997 has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 327.36 lakh each year during the tariff period.

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 $1/5^{\text{th}}$ 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 above methodology, working capital has been worked out. The value of maintenance spares for 1997-98 has been taken as per Ministry of Power notification dated 14.05.1999 and the same 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 of some of the respondents. The detailed calculations in support of interest on Working Capital are as under:

Interest on Working Capital

(Rs. In lakh)				
Working Capital		2001-02	2002-03	2003-04
Escalation for Maintenance Spares	6%			
Maintenance Spares	59.84			
Less: 1/5 th of Initial Spares	0.00			
Maintenance Spares	59.84	63.43	67.24	71.27
O & M expenses		17.85	18.92	20.05
Receivables		129.84	112.34	114.76
Total		211.12	198.50	206.08
Rate of Interest		11.50%	11.50%	11.50%
Interest		24.28	22.83	23.70

TRANSMISSION CHARGES

47. 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	42.74	0.00	0.00
Interest on Working Capital	24.28	22.83	23.70
Depreciation	133.01	96.87	96.87
Advance against Depreciation	37.49	0.00	0.00

Return on Equity	327.36	327.36	327.36
O & M Expenses	214.15	227.00	240.62
Total	779.03	674.05	688.55

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 nor already included in the O&M charges.

49. 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.

50. The transmission charges approved by us shall be included in the regional transmission tariff for Western Region and shall be shared by the regional beneficiaries in accordance with the notification dated 26.3.2001.

54. This order disposes of Petition No.46/2002.

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(G.S. RAJAMANI)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 16th July, 2003