

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

1. **Shri A.K.Basu, chairperson**
2. **Shri. Bhanu Bhushan, Member**
3. **Shri A.H.Jung, Member**

**Petition No.125/2005**

**In the matter of**

Petition for approval of transmission tariff for 132 kV S/C Mau-Balia line in Northern Region for the period 1.5.2003 to 31.3.2004.

**And in the matter of**

Power Grid Corporation of India Ltd.

.... **Petitioner**

Vs

Uttar Pradesh Power Corporation Limited, Lucknow

.....**Respondent**

**The following were present:**

1. Shri P.C. Pankaj, AGM (Comml.), PGCIL
2. Shri U.K. Tyagi, PGCIL
3. Shri C.Kannan, PGCIL
4. Shri Prashant Sharma, PGCIL
5. Dr. R.K.Srivastava, PGCIL
6. Shri R.T.Agrawal, PGCIL
7. Shri M.M. Mondal, CM (Fin.), PGCIL

**ORDER**

**(DATE OF HEARING: 23.2.2006)**

In this petition, the petitioner, Power Grid Corporation of India Ltd. has sought approval for transmission tariff in respect of 132 kV S/C Mau-Balia transmission line (hereinafter referred to as "the transmission line") in Northern Region for the period 1.5.2003 to 31.3.2004. The tariff is to be regulated based on the 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 investment approval for the transmission line was accorded by the Board of Directors of the petitioner company under Memo dated 14.1.2002 at an estimated cost of Rs. 684.00 lakh which included IDC of Rs. 36.00 lakh. The transmission line was declared under commercial operation on 1.5.2003.

3. The estimated completion cost of transmission line is stated to be Rs 606.56 lakh. The petitioner has sought approval of transmission charges based on cost of Rs. 585.87 lakh as on 1.5.2003 as under:

| (Rs. in lakh)                |                        |
|------------------------------|------------------------|
| Transmission Tariff          | 2003-2004 ( 11 months) |
| Interest on Loan             | 31.10                  |
| Interest on Working Capital  | 2.72                   |
| Depreciation                 | 13.80                  |
| Advance against Depreciation | 0.00                   |
| Return on Equity             | 29.46                  |
| O & M Expenses               | 28.22                  |
| <b>Total</b>                 | <b>105.30</b>          |

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

| (Rs in lakh)               |             |
|----------------------------|-------------|
| 2003-04                    |             |
| Maintenance Spares         | 5.86        |
| O & M expenses             | 2.57        |
| Receivables                | 19.15       |
| Total                      | 27.57       |
| Rate of Interest           | 10.75%      |
| Interest                   | 2.96        |
| <b>Interest (pro rata)</b> | <b>2.72</b> |

5. In addition, the petitioner has prayed for approval of other charges like Foreign Exchange Rate Variation, Income Tax, incentive, late payment surcharge, other statutory taxes, levies, cess, filing fee, etc.

### **CAPITAL COST**

6. 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 criterion for the fixation of tariff. Where the actual expenditure exceeds the approved project cost the expenditure as approved by the CEA or an appropriate independent agency, as the case may be,

shall be deemed to be the actual capital expenditure for the purpose of determining the tariff, provided that excess expenditure is not attributable to the `Transmission Utility` or its suppliers or contractors and provided further that where a transmission services agreement entered into between the Transmission Utility and the beneficiary provides a ceiling on capital expenditure, the capital expenditure shall not exceed such ceiling.

7. As per the investment approval granted by the Board of Directors of the petitioner company, the transmission line was to be completed by April 2003. The transmission line has been declared under commercial operation w.e.f. 1.5.2003. Thus, there is no time over run. As per the auditor's certificate dated 11.11.2004 furnished by the petitioner, the estimated cost of the transmission assets is Rs 606.56 lakh, but the an expenditure of Rs. 585.87 lakh was incurred up to the date of the commercial operation. Therefore, capital cost of Rs. 585.87 lakh has been considered for the purpose of tariff.

#### **SOURCES OF FINANCING. DEBT – EQUITY RATIO**

8. 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. Debt-equity ratio or financial package for the asset covered in the present petition is not given separately in the investment approval. The petitioner has claimed tariff by taking debt and equity in the ratio of 65.71:34.29 since the debt-equity ratio is not indicated in the cost estimates approval accorded by the Board of Directors of the petitioner company. Therefore, the actual debt-equity ratio of 65.71:34.29 has been considered for determination of tariff in the present petition. Accordingly, a total loan of Rs. 385.00 lakh and equity of Rs. 200.87 lakh, as on the date of commercial operation, are being considered.

## INTEREST ON LOAN

9. 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.

10. The interest on loan has been worked out by considering the gross amount of loan, repayments for the year 2003-04 and rates of interest as per the loan details submitted by the petitioner under affidavit dated 18.5.2005.

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

### Calculation of Interest on Loan

(Rs. in lakh)

| Details of Loan   | 2003-04                               |
|---|---------------------------------------|
| No. of days in the Year   | 366                                   |
| <b>Bond-X</b>   |                                       |
| Gross Loan -Opening   | 18.00                                 |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 18.00                                 |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 18.00                                 |
| Rate of Interest  | 10.90%                                |
| Interest  | 1.80                                  |
| Repayment Schedule  | 12 Annual Instalments from 21. 6.2004 |
| <b>Bond XIII (Option-I)</b>   |                                       |
| Gross Loan -Opening   | 327.00                                |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 327.00                                |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 327.00                                |
| Rate of Interest - Bond XIII -Option-II                               | 8.63%                                 |
| Interest  | 25.91                                 |
| Repayment Schedule  | 12 Annual Instalments from 31. 7.2006 |
| <b>Bond-XI Option I</b>   |                                       |
| Gross Loan -Opening   | 18.00                                 |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 18.00                                 |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 18.00                                 |

|   |                                       |
|---|---------------------------------------|
| Rate of Interest  | 9.80%                                 |
| Interest  | 1.62                                  |
| Repayment Schedule  | 12 Annual Instalments from 7.12.2005  |
| <b>Oriental Bank of Commerce</b>                                      |                                       |
| Gross Loan -Opening   | 9.00                                  |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 9.00                                  |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 9.00                                  |
| Rate of Interest (Floating)   | 8.60%                                 |
| Interest  | 0.71                                  |
| Repayment Schedule  | 12 Annual Instalments from 22. 3.2005 |
| <b>PNB-II</b>   |                                       |
| Gross Loan -Opening   | 12.00                                 |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 12.00                                 |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 12.00                                 |
| Rate of Interest (Floating)   | 8.85%                                 |
| Interest  | 0.97                                  |
| Repayment Schedule  | 12 Annual Instalments from 8. 3.2005  |
| <b>Bond-XII</b>   |                                       |
| Gross Loan -Opening   | 1.00                                  |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 1.00                                  |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 1.00                                  |
| Rate of Interest  | 9.70%                                 |
| Interest  | 0.09                                  |
| Repayment Schedule  | 12 Annual Instalments from 28. 3.2006 |
| <b>Total Loan</b>   |                                       |
| Gross Loan -Opening   | 385.00                                |
| Additions during the year   | 0.00                                  |
| Cumulative Repayment up to previous year/date of commercial operation | 0.00                                  |
| Net Loan-Opening  | 385.00                                |
| Repayment during the year   | 0.00                                  |
| Net Loan-Closing  | 385.00                                |
| Interest  | 31.10                                 |

12. Certain loans carry floating rates of interest and the rates of interest as indicated by the petitioner, as applicable on the date of commercial operation, have been considered for the purpose of computation of interest on loan component of

tariff. Any change or resetting of the interest rates on these loans during the tariff period shall be settled between the parties mutually. In case of any dispute in settlement of the interest on any of these loans between the parties, either of them is at liberty to approach the Commission for appropriate relief.

### **DEPRECIATION**

13. 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.

14. The petitioner has claimed the depreciation of Rs. 13.81 lakh in accordance with the above principles.

15. Depreciation for individual items of capital expenditure has been calculated on the capital cost of Rs. 585.87 lakh as considered by us for the purpose of tariff at the rates as prescribed in the notification dated 26.3.2001. While approving depreciation component of tariff, the weighted average depreciation rate of 2.57% has been worked out. The calculations in support of weighted average rate of depreciation of 2.57% are appended hereinbelow:

(Rs. in lakh)

|  | Capital Cost  | Approved cost | Rate of Depreciation | Depreciation |
|--|---------------|---------------|----------------------|--------------|
| <b>Capital Expenditures as on 1.5..2003</b>  |               |               |                      |              |
| Land   | 0.00          |               | 0%                   | 0.00         |
| Building & Other Civil Works                 | 0.00          |               | 1.80%                | 0.00         |
| Sub-Station Equipment                        | 0.00          |               | 3.60%                | 15.06        |
| Transmission Line                            | 585.87        |               | 2.57%                | 0.00         |
| PLCC   | 0.00          |               | 6.00%                | 15.06        |
| <b>Total</b>                                 | <b>585.87</b> | <b>684.00</b> |                      |              |
| <b>Weighted Average Rate of Depreciation</b> |               |               | <b>2.57%</b>         |              |

16. Accordingly, the depreciation in tariff allowed works out to Rs. 13.81 lakh for the year 2003-04 as calculated below:

(Rs. in lakh)

|  |        | <b>2003-04</b> |
|--|--------|----------------|
| Rate of Depreciation                       | 2.57%  |                |
| Depreciable Value (90% of the Gross Block) | 527.28 |                |
| Balance Useful life of the asset           |        |                |
| Remaining Depreciable Value                |        | 527.28         |
| <b>Depreciation</b>                        |        | <b>13.81</b>   |

### **ADVANCE AGAINST DEPRECIATION**

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

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

18. The petitioner has not claimed Advance Against Depreciation. Accordingly, the petitioner's entitlement to Advance Against Depreciation is `nil`.

### **OPERATION & MAINTENANCE EXPENSES**

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

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

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.

20. The normalised O & M expenses for Northern Region have been calculated separately in a number of cases. The following table gives comparison of the normative O&M expenses as calculated by the petitioner and as per our calculations allowed for the base year i.e. 1999-2000 and afterwards:

### NORMALISED O&M EXPENSES FOR NORTHERN REGION

(Rs. in Lakh)

| S. NO. | Items   | 1995-96 | 1996-97 | 1997-98  | 1998-99  | 1999-2000      | Total for five years 95-96 to 99-00 | 99-00          | 2000-01        | 2001-02        | 2002-03        | 2003-04        |
|--------|---|---------|---------|----------|----------|----------------|-------------------------------------|----------------|----------------|----------------|----------------|----------------|
| 1      | Total O&M expenses(Rs. in lakh)                         | 4147.48 | 4336.62 | 6100.85  | 6676.57  | 7137.32        |                                     |                |                |                |                |                |
| 2      | Abnormal O&M expenses                                   | 0.00    | 0.00    | 57.64    | 107.13   | 99.08          | 263.85                              |                |                |                |                |                |
| 3      | Normal O&M expenses (S.No. 1 - S.NO. 2)                 | 4147.48 | 4336.62 | 6043.21  | 6569.44  | 7038.24        |                                     |                |                |                |                |                |
| 4      | <b>OML</b> (O&M for lines)= 0.7 X S. NO.3               | 2903.24 | 3035.63 | 4230.25  | 4598.61  | 4926.77        | <b>19694.50</b>                     |                |                |                |                |                |
| 5      | <b>OMS</b> (O&M for substation) = 0.3XS.NO.3            | 1244.24 | 1300.99 | 1812.96  | 1970.83  | 2111.47        | <b>8440.49</b>                      |                |                |                |                |                |
| 6      | Line length at beginning of the year in Kms.            | 9622.13 | 9622.13 | 9743.48  | 10561.88 | 10819.55       |                                     |                |                |                |                |                |
| 7      | Line length added in the year in Kms.                   | 0.00    | 121.35  | 818.40   | 257.67   | 1705.07        |                                     |                |                |                |                |                |
| 8      | Line length at end of the year in Kms.                  | 9622.13 | 9743.48 | 10561.88 | 10819.55 | 12524.62       |                                     |                |                |                |                |                |
| 9      | LL (Average line length in the Region)                  | 9622.13 | 9682.81 | 10152.68 | 10690.72 | 11672.09       | <b>51820.43</b>                     |                |                |                |                |                |
| 10     | NO. of bays at beginning of the year                    | 157     | 157     | 161      | 183      | 185            |                                     |                |                |                |                |                |
| 11     | NO. of bays added in the year                           | 0       | 4       | 22       | 2        | 31             |                                     |                |                |                |                |                |
| 12     | NO. of bays at the end of the year                      | 157     | 161     | 183      | 185      | 216            |                                     |                |                |                |                |                |
| 13     | BN (Average number of bays in the Region)               | 157.0   | 159.0   | 172.0    | 184.0    | 200.5          | <b>872.50</b>                       |                |                |                |                |                |
| 14     | AVOMLL(OML/LL)  | 0.302   | 0.314   | 0.417    | 0.430    | 0.422          | 1.884                               |                |                |                |                |                |
| 15     | AVOMBN(OMS/BN)  | 7.925   | 8.182   | 10.540   | 10.711   | 10.531         | 47.890                              |                |                |                |                |                |
| 16     | <b>NOMLL(allowable O&amp;M per unit of line length)</b> |         |         |          |          | <b>0.4560</b>  |                                     | <b>0.4560</b>  | <b>0.4759</b>  | <b>0.4931</b>  | <b>0.5084</b>  | <b>0.5308</b>  |
| 17     | <b>NOMBN(Allowable O&amp;M per bay)</b>                 |         |         |          |          | <b>11.5894</b> |                                     | <b>11.5894</b> | <b>12.0947</b> | <b>12.5325</b> | <b>12.9223</b> | <b>13.4922</b> |

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

22. The petitioner has claimed O&M expenses for 58 ckt Km of line length, which have been considered for calculation of O&M expenses.

23. O&M expenses allowed are given hereunder:

| 2003-04( from DOCO 1.5.2003 to 31.3.2004) |             |                            |
|---|-------------|----------------------------|
| Line length in ckt.km                     | No. of bays | O&M expenses (Rs. in lakh) |
| 58 Km                                     | -           | 28.22                      |

### **RETURN ON EQUITY**

24. In accordance with the notification, the petitioner is entitled to return on equity at the rate of 16% per annum. For the purpose of tariff equity of Rs. 200.87 lakh has been considered. On the above basis, the petitioner shall be entitled to return on equity of Rs. 29.46 lakh during 2003-04.

### **INTEREST ON WORKING CAPITAL**

25. As provided in the notification, the interest on working capital shall cover:

- (a) Operation and maintenance expenses (cash) for one month;
- (b) Maintenance spares at a normative rate of 1% of the capital cost less 1/5<sup>th</sup> 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%.

26. In keeping with the above methodology, working capital has been worked out, on the basis of capital expenditure as on the date of commercial operation. Deduction

on account of 1/5th of the initial capitalised spares has been considered in the calculations. The petitioner has claimed interest on working capital at the rate of 10.75%, based on annual SBI PLR as applicable on the date of commercial operation, which has been allowed. The detailed calculations in support of interest on Working Capital are as under:

**Interest on working capital**

| (Rs. in lakh)                   |                |
|---------------------------------|----------------|
|                                 | <b>2003-04</b> |
| Maintenance Spares              | 5.86           |
| Less Capitalised Initial Spares | 0.00           |
|                                 | 5.86           |
| O & M expenses                  | 2.57           |
| Receivables                     | 19.15          |
| Total                           | 27.57          |
| Rate of Interest                | 10.75%         |
| <b>Interest</b>                 | <b>2.72</b>    |

**TRANSMISSION CHARGES**

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

**TABLE**

| (Rs. in lakh)                |                            |
|------------------------------|----------------------------|
| <b>Transmission Tariff</b>   | <b>2003-04 (11 months)</b> |
| Interest on Loan             | 31.10                      |
| Interest on Working Capital  | 2.72                       |
| Depreciation                 | 13.81                      |
| Advance against Depreciation | 0.00                       |
| Return on Equity             | 29.46                      |
| O & M Expenses               | 28.22                      |
| <b>Total</b>                 | <b>105.30</b>              |

28. In addition to the transmission charges, the petitioner shall be entitled to other charges like income-tax, incentive, surcharge and other cess and taxes in accordance with the notification dated 26.3.2001 subject to directions, if any, of the superior courts. The petitioner shall also be entitled to recovery of filing fee of Rs 5 lakh, which shall be recovered from the respondent, UPPCL in five monthly installments. The petitioner shall also recover an amount of Rs. 30,621/- from the respondent in one

installment, this being the expenditure incurred on publication of notices. This is subject to confirmation that the amount is not already included in the O&M charges.

29. The petitioner is already billing the respondent on provisional basis in accordance with the Commission's the order dated 16.4.2004 in petition No. 22/2003. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

30. The transmission charges approved by us shall be borne exclusively by the respondent, the sole beneficiary.

31. This order disposes of Petition No. 125/2005.

**sd-/  
(A.H.JUNG)  
MEMBER**

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

**sd-/  
(ASHOK BASU)  
CHARIPERSON**

New Delhi, dated the 25<sup>th</sup> April 2006.