

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

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

**Petition No.134/2004**

**In the matter of**

Approval of transmission charges for NLC Stage-I Transmission System in Southern Region for the period from 1.4.2004 to 31.3.2009

**And in the matter of**

Power Grid Corporation of India Limited

....**Petitioner**

**Vs**

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

**The following were present:**

1. Shri U.K. Tyagi, PGCIL
2. Shri C. Kannan, PGCIL
3. Shri P.C. Pankaj, PGCIL
4. Shri Prasant Sharma, CM, PGCIL
5. Shri M.M. Mondal, CM (Fin), PGCIL
6. Shri R. Balachandran, KSEB
7. Shri N.Vijaya Bhaskar, KPTCL
8. Shri S. Sowmyanarayanan, TNEB

**ORDER**

**(DATE OF HEARING: 15.9.2005)**

The petition has been filed for approval of transmission charges for NLC Stage –I Transmission System (the transmission system) in Southern Region for the period from 1.4.2004 to 31.3.2009, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, (hereinafter referred to as “the 2004

regulations”). The petitioner had also prayed that it be permitted to continue the billing of transmission charges on the same basis as charged on 31.3.2004, pending determination of tariff in the present petition. No other specific relief is prayed for.

2. The techno-economic clearance for the transmission system for evacuation of power from NLC Thermal Power Station, Stage-I in Southern Region was accorded by Central Electricity Authority at an estimated cost of Rs. 77.84 crore. The scope of work included in the transmission system and the dates of commercial operation of the respective transmission line are as stated below:

| S.No. | Name of the transmission line/asset              | Date of commercial operation | Actual Line length in ckt. km |
|-------|--------------------------------------------------|------------------------------|-------------------------------|
| (i)   | 400 kV S/C Neyveli-Salem transmission line-I     | 7.5.1988                     | 174.95                        |
| (ii)  | 400 kV S/C Neyveli-Madras transmission line      | 17.7.1987                    | 181.85                        |
| (iii) | 220 kV S/C Neyveli-Pondicherry transmission line | 12.4.1987                    | 63.23                         |
|       | Total                                            |                              | 420.03                        |

3. The tariff for the transmission system for the period ending 31.3.2001 was notified by Ministry of Power vide its notifications dated 1.12.1998 and 14.5.1999 at a cost of Rs. 79.94 crore. The Commission approved the tariff for the period 1.4.2001 to 31.3.2004 by its order dated 30.6.2003 read with order dated 8.6.2004 in petition No. 45/2002.

4. The petitioner has claimed the transmission charges as under:

(Rs. In lakh)

|                              | <b>2004-05</b> | <b>2005-06</b> | <b>2006-07</b> | <b>2007-08</b> | <b>2008-09</b> |
|------------------------------|----------------|----------------|----------------|----------------|----------------|
| Depreciation                 | 90.91          | 90.91          | 90.91          | 90.91          | 90.91          |
| Interest on Loan             | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Return on Equity             | 336.78         | 336.78         | 336.78         | 336.78         | 336.78         |
| Advance against Depreciation | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Interest on Working Capital  | 33.83          | 35.34          | 36.94          | 38.61          | 40.40          |
| O & M Expenses               | 151.59         | 157.63         | 164.17         | 170.37         | 177.53         |
| <b>Total</b>                 | <b>613.12</b>  | <b>620.66</b>  | <b>628.80</b>  | <b>636.67</b>  | <b>645.53</b>  |

5. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:

(Rs. in lakh)

|                    | <b>2004-05</b> | <b>2005-06</b> | <b>2006-07</b> | <b>2007-08</b> | <b>2008-09</b> |
|--------------------|----------------|----------------|----------------|----------------|----------------|
| Maintenance Spares | 215.26         | 228.18         | 141.87         | 256.36         | 271.77         |
| O & M expenses     | 12.63          | 13.14          | 13.68          | 14.20          | 14.79          |
| Receivables        | 102.19         | 103.44         | 104.80         | 106.11         | 107.60         |
| Total              | 330.08         | 344.76         | 360.35         | 376.69         | 394.16         |
| Rate of Interest   | 10.25%         | 10.25%         | 10.25%         | 10.25%         | 10.25%         |
| Interest           | 33.83          | 35.34          | 36.94          | 38.61          | 40.40.         |

6. In the Central Government, Ministry of Power notifications dated 1.12.1998 and 14.5.1999, the cumulative depreciation recovered up to 31.3.1997 was deducted from gross block and an amount of Rs. 155.16 lakh on account of additional capitalisation was added to arrive at net fixed asset value as on 1.4.1997. The net fixed asset value of Rs. 4811.16 lakh thus arrived at was divided into notional loan and equity on 50:50 basis. This was adopted by the Commission in its order dated 30.6.2003 read with order dated 8.6.2004 in petition No. 45/2002.

7. The replies to the petition have been filed by Karnataka Power Transmission Corporation Limited and Tamil Nadu Electricity Board.

### **CAPITAL COST**

8. As per clause (2) of Regulation 52 of the 2004 regulations in case of the projects existing up to 31.3.2004, the project cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

9. The petitioner has considered the capital expenditure of Rs.7994.16 lakh admitted by the Commission in the order dated 30.6.2003 read with order dated 8.6.2004 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has also not considered additional capitalisation on account of FERV as there are no foreign loans. Accordingly, gross block of Rs. 7994.16 lakh as claimed has been considered for the purpose of tariff.

### **DEBT- EQUITY RATIO**

10. Regulation 54 of the 2004 regulations *inter alia* provides that in case of the existing project, debt–equity ratio considered by the Commission for fixation of tariff for the period ending 31.3.2004 shall be considered for determination of tariff. It further provides that the debt and equity amount arrived at in the above manner shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.

11. The petitioner has claimed tariff based on debt-equity of 50:50 in net fixed asset of Rs. 4811.16 lakh as on 1.4.1997 which was considered by the Commission in its order dated 30.6.2003 read with order dated 8.6.2004 *ibid*, and is in accordance with the 2004 regulations. Accordingly, the debt-equity ratio of 50:50 as on 1.4.1997 has been

considered. Based on this, Rs. 2405.58 lakh has been considered as the equity for the purpose of determination of tariff in the present petition.

### **RETURN ON EQUITY**

12. As per clause (iii) of Regulation 56 of the 2004 regulations, return on equity shall be computed on the equity base determined in accordance with regulation 54 @ 14% per annum. Equity invested in foreign currency is to be allowed a return in the same currency and the payment on this account is made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

13. The petitioner has claimed return on equity of Rs. 2405.58 lakh, which has been found to be admissible. Accordingly, the petitioner shall be entitled to return on equity @ Rs.336.78 lakh each year during the tariff period.

### **INTEREST ON LOAN**

14. As per clause (i) of Regulation 56 of the 2004 regulations, interest on loan capital is to be computed loan wise on the loans arrived at in the manner indicated in regulation 54. Further, the loan outstanding as on 1.4.2004 is worked out as the gross loan as per regulation 54 minus cumulative repayment as admitted by the Commission up to 31.3.2004. The repayment for the period 2004-2009 needs to be worked out on normative basis.

15. The petitioner has not claimed any interest on loan as the entire loan was repaid during 2003-04. Accordingly, the petitioner is not entitled to interest on loan.

### **DEPRECIATION**

16. Sub-clause (a) of clause (ii) of Regulation 56 of the 2004 regulations provides for computation of depreciation in the following manner, namely:

- (i) The value base for the purpose of depreciation shall be the historical cost of the asset.
- (ii) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government/Commission.
- (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.

17. The gross depreciable value of the asset, as per (ii) above is  $0.9 \times (7994.16 - 172.00)$  lakh = Rs.7039.94 lakh. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs. 5676.24 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs.1363.71 lakh.

18. As the entire loan for the transmission system covered in the present petition has already been repaid, the depreciation has been worked out by spreading the balance depreciable value over the remaining useful life of the asset (15 years as on 1.4.2004), and it comes to Rs.90.91 lakh per year.

### **ADVANCE AGAINST DEPRECIATION**

19. As per sub-clause (b) of clause (ii) of Regulation 56 of the 2004 regulations, in addition to allowable depreciation, the transmission licensee is entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan repayment amount as per regulation 56 (i) subject to a ceiling of 1/10th of loan amount as per regulation 54 minus depreciation as per schedule

20. It is provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year. It is further provided that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

21. The petitioner has not claimed Advance Against Depreciation, as there is no loan repayment. The petitioner's entitlement to Advance Against Depreciation is, therefore, zero.

### **OPERATION & MAINTENANCE EXPENSES**

22. In accordance with clause (iv) of Regulation 56 the 2004 regulations, the following norms are prescribed for O & M expenses:

|                                      | Year    |         |         |         |         |
|--------------------------------------|---------|---------|---------|---------|---------|
|                                      | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 |
| O&M expenses (Rs in lakh per ckt-km) | 0.227   | 0.236   | 0.246   | 0.255   | 0.266   |
| O&M expenses (Rs in lakh per bay)    | 28.12   | 29.25   | 30.42   | 31.63   | 32.90   |

23. The petitioner has claimed O & M expenses for 420.03 ckt-kms of line length and 2 bays (one each at Madras and Salem sub-station), which has been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

|                              | Year          |               |               |               |               |
|------------------------------|---------------|---------------|---------------|---------------|---------------|
|                              | 2004-05       | 2005-06       | 2006-07       | 2007-08       | 2008-09       |
| O&M expenses for line length | 95.35         | 99.13         | 103.33        | 107.11        | 111.73        |
| O&M expenses for bays        | 56.24         | 58.50         | 60.84         | 63.26         | 65.80         |
| <b>Total</b>                 | <b>151.59</b> | <b>157.63</b> | <b>164.17</b> | <b>170.37</b> | <b>177.53</b> |

(Rs in lakh)

24. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007. Therefore, O & M expenses should be subject to revision on account of revision of employee cost from that date. In the alternative, it has been prayed that the increase in employee cost due to wage revision be allowed as per actuals for extra cost to be incurred consequent to wage revision. We are not expressing any view, as this issue does not arise for consideration at this stage. The petitioner may approach for a relief in this regard at an appropriate stage in accordance with law.

### **INTEREST ON WORKING CAPITAL**

25. The components of the working capital and the interest thereon are discussed hereunder:

**(i) Maintenance spares**

Regulation 56(v)(1)(b) of the 2004 regulations provides for maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation. In the present case, element-wise capital expenditure on the date of commercial operation has not been made available by the petitioner. The earliest available capital expenditure as per following details, as on 1.4.1992 has been taken as the historical cost for the purpose of the present petition and maintenance spares have been worked out accordingly by escalating 1% of the historical cost @ 6% per annum.

| Name of elements                               | Date of commercial operation | Capital expenditure (Rs in crore) as on 1.4.1992 | Escalated cost (Rs.in Crore as on 1.4.2004) |
|------------------------------------------------|------------------------------|--------------------------------------------------|---------------------------------------------|
| 400 kV S/C Neyveli-Salem transmission line     | 7.5.1988                     | 35.57                                            | 71.57                                       |
| 400 kV S/C Salem-Madras transmission line      | 17.7.1987                    | 37.01                                            | 74.47                                       |
| 400 kV S/C Udumalpet-Trichur transmission line | 12.4.1987                    | 5.81                                             | 11.69                                       |
| TOTAL                                          |                              |                                                  | 157.74                                      |

**(ii) O & M expenses**

Regulation 56(v)(1)(a) of the 2004 regulations provides for operation and maintenance expenses for one month as a component of working capital. The petitioner has claimed O&M expenses for 1 month of O&M expenses of the respective year as claimed in the petition. This has been considered in the working capital.

**(iii) Receivables**

As per Regulation 56(v)(1)(c) of the 2004 regulations, receivables will be equivalent to two months average billing calculated on target availability level. The petitioner has claimed the receivables on the basis 2 months' transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis 2 months' transmission charges.

**(iv) Rate of interest on working capital**

As per Regulation 56(v)(2) of the 2004 regulations, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2004 or on 1st April of the year in which the project or part thereof (as the case may be) is declared under commercial operation, whichever is later. The interest on working capital is payable on normative basis notwithstanding that the transmission licensee has not taken working capital loan from any outside agency. The petitioner has claimed interest on working capital @ 10.25% based on SBI PLR as on 1.4.2004, which is in accordance with the 2004 regulations and has been allowed.

26. The necessary computations in support of interest on working capital are appended hereinbelow.

|             |                |                |                |                |                |
|-------------|----------------|----------------|----------------|----------------|----------------|
|             | (Rs. in lakh)  |                |                |                |                |
|             | <b>2004-05</b> | <b>2005-06</b> | <b>2006-07</b> | <b>2007-08</b> | <b>2008-09</b> |
| Maintenance | 157.74         | 167.20         | 177.23         | 187.87         | 199.14         |

|                  |              |              |              |              |              |
|------------------|--------------|--------------|--------------|--------------|--------------|
| Spares           |              |              |              |              |              |
| O & M expenses   | 12.63        | 13.14        | 13.68        | 14.20        | 14.79        |
| Receivables      | 101.19       | 102.38       | 103.68       | 104.92       | 106.34       |
| Total            | 271.56       | 282.72       | 294.59       | 306.99       | 320.27       |
| Rate of Interest | 10.25%       | 10.25%       | 10.25%       | 10.25%       | 10.25%       |
| <b>Interest</b>  | <b>27.83</b> | <b>28.98</b> | <b>30.20</b> | <b>31.47</b> | <b>32.83</b> |

### **TRANSMISSION CHARGES**

27. A summary sheet giving capital cost, depreciation and other relevant parameters, which have formed the basis for determining transmission charges is attached to this order. The transmission charges being allowed for NLC Stage-I transmission system are summarised below.

|                              | (Rs. In lakh)  |                |                |                |                |
|------------------------------|----------------|----------------|----------------|----------------|----------------|
|                              | <b>2004-05</b> | <b>2005-06</b> | <b>2006-07</b> | <b>2007-08</b> | <b>2008-09</b> |
| Depreciation                 | 90.91          | 90.91          | 90.91          | 90.91          | 90.91          |
| Interest on Loan             | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Return on Equity             | 336.78         | 336.78         | 336.78         | 336.78         | 336.78         |
| Advance against Depreciation | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           |
| Interest on Working Capital  | 27.83          | 28.98          | 30.20          | 31.47          | 32.83          |
| O & M Expenses               | 151.59         | 157.63         | 164.17         | 170.37         | 177.53         |
| <b>Total</b>                 | <b>607.12</b>  | <b>614.30</b>  | <b>622.06</b>  | <b>629.53</b>  | <b>638.05</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 2004 regulations. These transmission charges shall be included in the regional transmission tariff for Southern Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

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

30. This order disposes of Petition No.134/2004.

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

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

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

**New Delhi, dated the 23rd November 2005**

### Summary Sheet

|                                                                                                                                                                                               |                                                                           |                                                           |        |                                                    |      |         |      |                |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------|--------|----------------------------------------------------|------|---------|------|----------------|------------|
| Name of the Company                                                                                                                                                                           |                                                                           |                                                           |        | PGCIL                                              |      |         |      |                |            |
| Name of the Scheme                                                                                                                                                                            |                                                                           |                                                           |        | NLC Stage-I Transmission System in Southern Region |      |         |      |                |            |
| Date of Commercial Operation                                                                                                                                                                  |                                                                           |                                                           |        | From April, 87 to May, 88                          |      |         |      |                |            |
| Tariff setting Period                                                                                                                                                                         |                                                                           |                                                           |        | 2004-09                                            |      |         |      |                |            |
| Petition No.                                                                                                                                                                                  |                                                                           |                                                           |        | 134/2004                                           |      |         |      |                |            |
|                                                                                                                                                                                               |                                                                           |                                                           |        |                                                    |      |         |      |                | Rs.in lakh |
| 1                                                                                                                                                                                             | Capital Cost of the Project                                               |                                                           |        |                                                    |      |         |      |                | 7994.16    |
| 2                                                                                                                                                                                             | Admitted Capital Cost as on 01.04.2004 for Calculation of Debt and Equity |                                                           |        |                                                    |      |         |      |                | 4811.16    |
| 3                                                                                                                                                                                             | Additional Capitalisation (works)                                         |                                                           |        |                                                    |      |         |      |                | 0.00       |
|                                                                                                                                                                                               |                                                                           | For the year 2001-02                                      |        |                                                    |      |         | 0.00 |                |            |
|                                                                                                                                                                                               |                                                                           | For the year 2002-03                                      |        |                                                    |      |         | 0.00 |                |            |
|                                                                                                                                                                                               |                                                                           | For the year 2003-04                                      |        |                                                    |      |         | 0.00 |                |            |
|                                                                                                                                                                                               |                                                                           | Total                                                     |        |                                                    |      |         | 0.00 |                |            |
| 4                                                                                                                                                                                             | Additional Capitalisation (FERV)                                          |                                                           |        |                                                    |      |         |      |                | 0.00       |
|                                                                                                                                                                                               | No:                                                                       |                                                           |        |                                                    |      |         |      |                |            |
|                                                                                                                                                                                               |                                                                           | For the year 2001-02                                      |        |                                                    |      |         | 0.00 |                |            |
|                                                                                                                                                                                               |                                                                           | For the year 2002-03                                      |        |                                                    |      |         | 0.00 | Not applicable |            |
|                                                                                                                                                                                               |                                                                           | For the year 2003-04                                      |        |                                                    |      |         | 0.00 |                |            |
|                                                                                                                                                                                               |                                                                           | Total                                                     |        |                                                    |      |         | 0.00 |                |            |
| 5                                                                                                                                                                                             | Total Capital Cost as on 01.04.2004(2+3+4)                                |                                                           |        |                                                    |      |         |      |                | 4811.16    |
| 6                                                                                                                                                                                             | Means of Finance <sup>1</sup> :                                           |                                                           |        |                                                    |      |         |      |                |            |
|                                                                                                                                                                                               |                                                                           | Debt                                                      | 50.00% |                                                    |      | 2405.58 |      |                |            |
|                                                                                                                                                                                               |                                                                           | Equity                                                    | 50.00% |                                                    |      | 2405.58 |      |                |            |
|                                                                                                                                                                                               |                                                                           | Total                                                     |        |                                                    |      | 4811.16 |      |                |            |
| 7                                                                                                                                                                                             | Debt details-Entire notional debt stands paid as on 01.04.2004            |                                                           |        |                                                    |      |         |      |                | -          |
| 8                                                                                                                                                                                             | Weighted Av. Rate of interest-Not applicable                              |                                                           |        |                                                    |      |         |      |                |            |
| 9                                                                                                                                                                                             | Depreciation recovered up to 31.03.09:                                    |                                                           |        |                                                    |      |         |      |                | 6130.81    |
|                                                                                                                                                                                               |                                                                           |                                                           |        | Dep                                                | AAD  | Total   |      |                |            |
|                                                                                                                                                                                               |                                                                           | Recovered up to 31.03.2001                                |        | 5112.36                                            | 0.00 | 5112.36 |      |                |            |
|                                                                                                                                                                                               |                                                                           | From 01.04.01 to 31.04.2004                               |        | 563.88                                             | 0.00 | 563.88  |      |                |            |
|                                                                                                                                                                                               |                                                                           | From 01.04.2004 to 31.03.2009                             |        | 454.57                                             | 0.00 | 454.57  |      |                |            |
|                                                                                                                                                                                               |                                                                           | Total                                                     |        |                                                    |      | 6130.81 |      |                |            |
| 10                                                                                                                                                                                            | Balance Depreciation to be recovered beyond 31.03.2009:                   |                                                           |        |                                                    |      |         |      |                | 909.13     |
|                                                                                                                                                                                               |                                                                           | Capital cost for the purpose of Depreciation <sup>2</sup> |        |                                                    |      | 7994.16 |      |                |            |
|                                                                                                                                                                                               |                                                                           | Land Cost                                                 |        |                                                    |      | 172.00  |      |                |            |
|                                                                                                                                                                                               |                                                                           | Capital cost excluding land cost                          |        |                                                    |      | 7822.16 |      |                |            |
|                                                                                                                                                                                               |                                                                           | 90% of Capital Cost as above                              |        |                                                    |      | 7039.94 |      |                |            |
|                                                                                                                                                                                               |                                                                           | Cum. Depreciation to be recovered up to 31.03.09          |        |                                                    |      | 6130.81 |      |                |            |
|                                                                                                                                                                                               |                                                                           | Balance                                                   |        |                                                    |      | 909.13  |      |                |            |
| 1 Debt and Equity are notional and not actual as per division of debt & equity taken by Government of India as 50:50 and the same has been accepted by the Commission.                        |                                                                           |                                                           |        |                                                    |      |         |      |                |            |
| 2 Previous tariff was set by the Commission for the period from 01.04.2001 to 31.03.2004.The Gross Block as on 01.04.2001 as per Commission's order in petition 45/2002 was Rs. 7994.16 lakh. |                                                                           |                                                           |        |                                                    |      |         |      |                |            |