

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

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

**Petition No 40/2001**

**In the matter of**

Approval of tariff in respect of National Capital Thermal Power Station, Dadri for the period from 1.4.2001 to 31.3.2004.

**And in the matter of**

National Thermal Power Corporation Ltd.

**.....Petitioner**

**Vs**

1. Uttar Pradesh Power Corporation Ltd., Lucknow
2. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
3. Delhi Vidyut Board, New Delhi
4. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
5. Punjab State Electricity Board, Patiala
6. Himachal Pradesh State Electricity Board, Shimla
7. Power Development Department, Govt. of J&K, Srinagar
8. Power Department Union Territory of Chandigarh, Chandigarh
9. Uttaranchal Power Corporation Ltd., Dehradun

**..Respondents**

**The following were present**

1. Shri K.K. Garg, GM (C), NTPC
2. Shri M.S. Chawla, NTPC
3. R. Datt, AGM (Comml.)
4. Shri D.S. Sharma, NTPC
5. Smt. Ranjna Gupta, Mgr. (Comml), NTPC
6. Shri R.Singhal, NTPC
7. Shri R. Mazumdar, NTPC
8. Shri K.K. Pande, GRIDCO
9. Shri R.K. Mehta, Advocate, GRIDCO
10. Shri T.P.S. Bawa, Superintending Engineer, PSEB
11. Shri D. Khandelwal, MPSEB
12. Shri R.K. Arora, HVPN

**ORDER**  
**(DATE OF HEARING 25.3.2003)**

This petition has been filed by the petitioner, NTPC, a generating company owned by the Central Government for approval of tariff in respect of National Capital Thermal Power Station, Dadri (hereinafter referred to as “NCTPS Dadri”) for the period from 1.4.2001 to 31.3.2004 based on the terms and conditions contained in the Commission’s notification dated 26.3.2001, (hereinafter referred to as the “notification dated 26.3.2001”).

2. NCTPS Dadri with a total capacity of 840 MW comprises of 4 units of 210 MW each. The first unit was declared under commercial operation on 1.1.1993 and the fourth unit on 1.12.1995. The tariff for the generating station was earlier notified by Ministry of Power vide its notification dated 25.2.1999 valid for a period up to 31.3.1998. The tariff for the period from 1.4.1998 to 31.3.2001 was approved by the Commission vide its order dated 18.5.2004 in petition No 128/2002. The Commission considered additional capitalisation up to 31.3.2001 in this tariff order.

3. The details of the fixed charges claimed by the petitioner in the present petition are given hereunder:

(Rs. in lakh)

| <b>Sl No.</b> | <b>Particulars</b>           | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
|---------------|------------------------------|----------------|----------------|----------------|
| 1             | Interest on Loan             | 5301           | 4188           | 3043           |
| 2             | Interest on Working Capital  | 5036           | 5230           | 5431           |
| 3             | Depreciation                 | 6226           | 6298           | 6330           |
| 4             | Advance against Depreciation | 729            | 737            | 699            |
| 5             | Return on Equity             | 13352          | 13508          | 13576          |
| 6             | O & M Expenses               | 10800          | 11448          | 12135          |
| 7             | Water Charges                | 47             | 47             | 47             |
|               | <b>TOTAL</b>                 | <b>41491</b>   | <b>41457</b>   | <b>41261</b>   |

4. The details of Working Capital furnished by the petitioner and its claim for interest thereon are summarised hereunder:

|  | (Rs. in lakh)  |                |                |
|--|----------------|----------------|----------------|
|  | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
| Fuel Cost                                | 6433           | 6723           | 7028           |
| Coal Stock                               | 6299           | 6581           | 6877           |
| Oil stock                                | 268            | 284            | 301            |
| O & M expenses                           | 900            | 954            | 1011           |
| Spares                                   | 4320           | 4579           | 4854           |
| Receivables                              | 21016          | 21607          | 22188          |
| Total Working Capital                    | 39235          | 40729          | 42259          |
| Working Capital Margin (WCM)             | 5951           | 5951           | 5951           |
| Total Working Capital allowed            | 33284          | 34778          | 36308          |
| Rate of Interest                         | 12.35%         | 12.35%         | 12.35%         |
| Interest on allowed Working Capital      | 4111           | 4295           | 4484           |
| Interest on WCM                          | 450            | 459            | 471            |
| Return on WCM                            | 476            | 476            | 476            |
| <b>Total Interest on Working capital</b> | <b>5036</b>    | <b>5230</b>    | <b>5431</b>    |

5. In addition, the petitioner has claimed Energy Charges @ 141.69 paise/kWh for the period from 1.4.2001 to 31.3.2004. The energy charges claimed are subject to adjustment for fuel price.

### **CAPITAL COST**

6. As per the notification dated 26.3.2001, the actual capital expenditure incurred on completion of the generating station shall be the criterion for fixation of tariff. It is further provided that where actual expenditure exceeds the approved project cost, the excess expenditure as approved by CEA or an appropriate independent agency shall be deemed to be the actual capital expenditure for the purpose of determining the tariff.

7. The Commission vide its order dated 18.5.2004 in Petition No.128/2002 has approved the tariff for the period 1.4.1998 to 31.3.2001 by considering a closing capital cost of Rs.164181.00 lakh as on 31.3.2001. This has been adopted as the opening capital cost as on 1.4.2001 for the purpose of tariff determination in the present petition. The petitioner has also included anticipated additional capital expenditure of Rs. 2278 lakh, Rs. 1619 lakh and Rs. 82 lakh for the years 2001-02, 2002-03 and 2003-04 respectively, based on budgetary projections. This additional capitalisation claimed by the petitioner has not been considered for tariff determination since the claim is not in line with the notification dated 26.3.2001. Therefore, in so far as the present petition is concerned, a capital cost of Rs.164181.00 lakh has been considered.

#### **DEBT-EQUITY RATIO**

8. As per the notification dated 26.3.2001, the interest on loan capital and return on equity are to be computed, as per the financial package approved by CEA or an appropriate independent agency, as the case may be. The petitioner has claimed tariff by considering debt and equity in the ratio of 50:50. It has been submitted by the respondents that debt and equity should be in the ratio of 80:20 or 70:30 as applicable to IPPs.

9. Ministry of Power, while notifying tariff vide its notification dated 25.2.1999 had considered the normative debt-equity ratio of 50:50. The debt-equity ratio of 50:50 was adopted by the Commission in its order dated 18.5.2004 in Petition No. 128/2002 while approving tariff for the period from 1.4.1998 to 31.3.2001. Therefore, for the purpose of present petition, debt-equity ratio of 50:50 has been adopted in the working.

### **TARGET AVAILABILITY**

10. The petitioner has considered Target Availability of 80%, based on the provisions of the notification dated 26.3.2001. Accordingly, Target Availability of 80 % has been considered for recovery of full fixed charges and computation of fuel element in the working capital for the period from 1.4.2001 to 31.3.2004.

### **RETURN ON EQUITY**

11. As per the notification dated 26.3.2001, return on equity shall be computed on the paid up and subscribed capital and shall be 16% of such capital. The petitioner has claimed return on equity @ 16%. The respondents have, however, submitted that that return on equity should be payable at 12%. In case of generating stations, return on equity was charged in tariff @ 12% per annum till 31.10.1998. However, it was increased to 16% with effect from 1.11.1998. The respondent has contended that there was no justification to increase return on equity from 12% to 16%. As the things stand, the terms and conditions prescribed by the Commission legislate that return on equity should be allowed @ 16%. Accordingly, we do not find any justification in support of the issue raised. In our computation of tariff, return on equity @ 16% per annum has been allowed.

12. The respondents have submitted that the tariff for the generating stations belonging to the petitioner were notified by Ministry of Power based on KP Rao Committee Report wherein it was recommended that once the loan is reduced to zero, the equity component will be reduced progressively to the extent of further depreciation recovered. It is, therefore, contended that the equity needs to be reduced to the extent of depreciation charged after notional loan was repaid. We

have considered this submission. The tariff notification issued by Ministry of Power on 25.2.1999 does not provide for reduction of equity after the loan is fully repaid. To that extent, the recommendation of KP Rao Committee was not accepted by the Central Government. In any case, the tariff is to be fixed in keeping with the provisions of the notification dated 26.3.2001, which also does not provide for the reduction of equity. Therefore, the contention raised on behalf of the respondents has been found to be without force.

13. The return on equity has been worked out on the average normative equity.

The charges payable by the respondents on account of return on equity as under:

| <b>Particulars</b>                                  | <b>(Rs in lakh)</b> |                |                |
|---|---------------------|----------------|----------------|
|   | <b>2001-02</b>      | <b>2002-03</b> | <b>2003-04</b> |
| Opening Balance                                     | 82091               | 82091          | 82091          |
| Increase/ Decrease due to FERV                      | 0                   | 0              | 0              |
| Increase/ Decrease due to Additional Capitalisation | 0                   | 0              | 0              |
| Closing Balance                                     | 82091               | 82091          | 82091          |
| Average   | 82091               | 82091          | 82091          |
| Rate of Return on Equity                            | 16.00%              | 16.00%         | 16.00%         |
| <b>Return on Equity</b>                             | <b>13134</b>        | <b>13134</b>   | <b>13134</b>   |

14. The reason for the difference between the petitioner's claim and the amount allowed on account of return on equity is because of rejection of the petitioner's claim for additional capitalization for the years 2001-2002 to 2003-2004.

### **INTEREST ON LOAN**

15. As per the notification dated 26.3.2001, the interest on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the financial package approved by CEA or an appropriate independent agency, as the case may be. The normative loan amount has been

worked out by considering debt and equity in the ratio of 50:50 as already decided. In accordance with earlier decisions of the Commission, the annual repayment amount for calculation of interest on loan as worked out by the following formula, or as claimed in the petition, whichever is higher, has been considered:

*Annual actual repayment during the year x normative loan at the beginning of the year/Actual loan at the beginning of the year.*

16. The other salient features in regard to calculation of interest on loan are stated herein after:

- (a) The gross opening normative loan amount has been considered based on the Commission's order dated 18.5.2004 in petition No 128/2002.
- (b) The cumulative repayment of loan up to 31.3.2001 has been taken.
- (c) Loan draws up to 31.3.2001 have been considered.
- (d)** Some of the loans carry floating rate of interest. Therefore, interest rate prevailing as on 1.4.2001 has been considered for interest computation for the period 1.4.2001 onwards. However, interest on loan would be subject to adjustment on the basis of actual rate of interest applicable for the period 1.4.2001 onwards. In case the parties are unable to agree to adjustment of rate of interest, any one of them is at liberty to approach the Commission for appropriate decision.
- (e)** IBJ-II loan (foreign loan) having 4 Tranches viz. Tranche -A, Tranche -B , Tranche -C and Tranche -D with different terms and conditions have been re-financed. IBJ-II (Tranche-A) was replaced by Sumitomo-I loan on 24.3.1997 and Sumitomo-I was entirely

repaid on 25.9.2000 and substituted by Sumitomo-III loan. ING((Bahring) loan has replaced the balance amount of IBJ-II(Tranche-A) loan on 24.3.1998 and SBI NY-II has replaced the entire outstanding balance of IBJ-II, Tranche-B and Tranche-C on 24.3.2000. The part of IBJ-II loan which was substituted /refinanced by loans with fixed interest rate are detailed below.

|                   | <b>IBJ-II(Tranche-A)\$</b>   |                              | <b>IBJ-II (Tranche-B)#</b>   | <b>IBJ-II (Tranche-C)#</b> |
|-------------------|------------------------------|------------------------------|------------------------------|----------------------------|
| Interest rate     | 5.85% per annum (Fixed)      |                              | 2.80% per annum (Fixed)      | 2.60% per annum (Fixed)    |
| Financial charges |                              |                              |                              |                            |
| Currency          | JY                           |                              | JY                           | JY                         |
|                   | <b>\$Sumitomo-I</b>          | <b>\$Sumitomo-III</b>        | <b>#SBI NY-II</b>            |                            |
| Interest rate     | 2.52% per annum (Fixed)      | 1.235% per annum (Fixed)     | 1.14% per annum (Fixed)      |                            |
| Financial charges | 0.45% Flat (Management fees) | 0.33% Flat (Management fees) | 0.35% Flat (Management fees) |                            |
| Currency          | JY                           | JY                           | JY                           |                            |

The part of IBJ-II loan which was substituted /refinanced by loan with floating/variable rate of interest is detailed below.

|                   | <b>IBJ-II(Tranche-A)\$</b> | <b>IBJ-II(Tranche-D)*</b> |
|-------------------|----------------------------|---------------------------|
| Interest rate     | 5.85% per annum (Fixed)    | LIBOR +0.375 % spread     |
| Financial charges |                            |                           |
| Currency          | <b>JY</b>                  | JY                        |
|                   | <b>\$ING (Bahring)</b>     | <b>*No re-financing</b>   |
| Interest rate     | 6 Months LIBOR +70 BPs     |                           |
| Financial charges | 1 % Flat (Management fees) |                           |
| Currency          | JY                         |                           |

In line with the Commission's earlier orders, the interest rate applicable on re-financed /substituted loans with fixed rate of interest have been considered in the working. As such, the interest rate applicable on SUMITOMO-III and SBI NY-II loans have been considered. In case of ING (Bairing) loan having floating/variable rate of interest, the interest rate applicable on IBJ-II (Tranche-A) has been considered. As IBJ-II (Tranche-D) is having floating/variable rate of interest and no re-financing is involved, the interest rate applicable as on 1.4.2001 (LIBOR with 0.375% spread) has been considered in the working.

- (f) Though the petitioner has not specifically mentioned about capitalization of financial charges in this particular petition, the financial charges in case of Bonds and UTI-IV loan have not been considered for working out the interest rate as these Bonds/ loans were drawn prior to the date of commercial operation of the generating station. This is in line with clarification separately given by the petitioner in Petition Nos. 1/2000 and 99/2002 that the financial charges for the loans drawn prior to the date of commercial operation were already capitalized. However, the financial charges in case of SUMITOMO-III and SBI NY-II loans have been considered for working out the interest rates of these loans in the present working.
- (g) On the basis of actual rate of interest on actual average loan, the weighted rate of interest on loan has been worked out and the same

has been applied on the normative average loan during the year to arrive at the interest on loan.

17. The necessary calculations in support of weighted average rate of interest are appended below:

**CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST**

(Rs. in lakh)

| <b>Particulars</b> | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
|--------------------|----------------|----------------|----------------|
| <b>Gol-I</b>       |                |                |                |
| Opening Balance    | 2657           | 2324           | 1992           |
| Addition/Drawl     | 0              | 0              | 0              |
| Repayments         | 332            | 332            | 332            |
| Net loan-Closing   | 2324           | 1992           | 1660           |
| Average Loan       | 2491           | 2158           | 1826           |
| Rate of Interest   | 14.00%         | 14.00%         | 14.00%         |
| Interest on loan   | 349            | 302            | 256            |
|                    |                |                |                |
| <b>Gol-II</b>      |                |                |                |
| Opening Balance    | 3748           | 3331           | 2915           |
| Addition/Drawl     | 0              | 0              | 0              |
| Repayments         | 416            | 416            | 416            |
| Net loan-Closing   | 3331           | 2915           | 2498           |
| Average Loan       | 3539           | 3123           | 2707           |
| Rate of Interest   | 14.00%         | 14.00%         | 14.00%         |
| Interest on loan   | 496            | 437            | 379            |
|                    |                |                |                |
| <b>Gol-III</b>     |                |                |                |
| Opening Balance    | 1933           | 1740           | 1547           |
| Addition/Drawl     | 0              | 0              | 0              |
| Repayments         | 193            | 193            | 193            |
| Net loan-Closing   | 1740           | 1547           | 1353           |
| Average Loan       | 1837           | 1643           | 1450           |
| Rate of Interest   | 14.00%         | 14.00%         | 14.00%         |
| Interest on loan   | 257            | 230            | 203            |
|                    |                |                |                |
| <b>Gol-IV</b>      |                |                |                |
| Opening Balance    | 2050           | 1640           | 1230           |

|                  |        |        |        |
|------------------|--------|--------|--------|
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments       | 410    | 410    | 410    |
| Net loan-Closing | 1640   | 1230   | 820    |
| Average Loan     | 1845   | 1435   | 1025   |
| Rate of Interest | 15.00% | 15.00% | 15.00% |
| Interest on loan | 277    | 215    | 154    |
|                  |        |        |        |
| <b>Gol-V</b>     |        |        |        |
| Opening Balance  | 8645   | 7204   | 5764   |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments       | 1441   | 1441   | 1441   |
| Net loan-Closing | 7204   | 5764   | 4323   |
| Average Loan     | 7925   | 6484   | 5043   |
| Rate of Interest | 16.00% | 16.00% | 16.00% |
| Interest on loan | 1268   | 1037   | 807    |
|                  |        |        |        |
| <b>Gol-VI</b>    |        |        |        |
| Opening Balance  | 9607   | 8234   | 6862   |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments       | 1372   | 1372   | 1372   |
| Net loan-Closing | 8234   | 6862   | 5489   |
| Average Loan     | 8920   | 7548   | 6176   |
| Rate of Interest | 16.88% | 16.88% | 16.88% |
| Interest on loan | 1505   | 1274   | 1042   |
|                  |        |        |        |
| <b>Gol-VII</b>   |        |        |        |
| Opening Balance  | 8463   | 7405   | 6347   |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments       | 1058   | 1058   | 1058   |
| Net loan-Closing | 7405   | 6347   | 5290   |
| Average Loan     | 7934   | 6876   | 5818   |
| Rate of Interest | 17.00% | 17.00% | 17.00% |
| Interest on loan | 1349   | 1169   | 989    |
|                  |        |        |        |
| <b>Gol-VIII</b>  |        |        |        |
| Opening Balance  | 8663   | 7701   | 6738   |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments       | 963    | 963    | 963    |
| Net loan-Closing | 7701   | 6738   | 5776   |
| Average Loan     | 8182   | 7220   | 6257   |
| Rate of Interest | 16.02% | 16.02% | 16.02% |
| Interest on loan | 1311   | 1157   | 1003   |

|                                     |               |               |               |
|-------------------------------------|---------------|---------------|---------------|
|                                     |               |               |               |
| <b>Gol-IX</b>                       |               |               |               |
| Opening Balance                     | 2391          | 2152          | 1913          |
| Addition/Drawl                      | 0             | 0             | 0             |
| Repayments                          | 239           | 239           | 239           |
| Net loan-Closing                    | 2152          | 1913          | 1674          |
| Average Loan                        | 2271          | 2032          | 1793          |
| Rate of Interest                    | 16.00%        | 16.00%        | 16.00%        |
| Interest on loan                    | 363           | 325           | 287           |
|                                     |               |               |               |
| <b>Gol-X</b>                        |               |               |               |
| Opening Balance                     | 1076          | 1076          | 969           |
| Addition/Drawl                      | 0             | 0             | 0             |
| Repayments                          | 0             | 108           | 108           |
| Net loan-Closing                    | 1076          | 969           | 861           |
| Average Loan                        | 1076          | 1023          | 915           |
| Rate of Interest                    | 16.00%        | 16.00%        | 16.00%        |
| Interest on loan                    | 172           | 164           | 146           |
|                                     |               |               |               |
| <b>Gol-Total</b>                    |               |               |               |
| Opening Balance                     | 49233         | 42809         | 36276         |
| Addition/Drawl                      | 0             | 0             | 0             |
| Repayments                          | 6425          | 6532          | 6532          |
| Net loan-Closing                    | 42809         | 36276         | 29744         |
| Average Loan                        | 46021         | 39542         | 33010         |
| Rate of Interest                    | <b>15.96%</b> | <b>15.96%</b> | <b>15.95%</b> |
| Interest on loan                    | 7347          | 6311          | 5265          |
|                                     |               |               |               |
| <b>Bond 8<sup>th</sup> Issue</b>    |               |               |               |
| Opening Balance                     | 130           | 0             | 0             |
| Addition/Drawl                      | 0             | 0             | 0             |
| Repayments                          | 130           | 0             | 0             |
| Net loan-Closing                    | 0             | 0             | 0             |
| Average Loan                        | 65            | 0             | 0             |
| Rate of Interest                    | 9.00%         | 9.00%         | 9.00%         |
| Interest on loan                    | 6             | 0             | 0             |
|                                     |               |               |               |
| <b>Bond 11th issue (Series III)</b> |               |               |               |
| Opening Balance                     | 498           | 498           | 498           |
| Addition/Drawl                      | 0             | 0             | 0             |
| Repayments                          | 0             | 0             | 498           |
| Net loan-Closing                    | 498           | 498           | 0             |

|  |        |        |        |
|--|--------|--------|--------|
| Average Loan   | 498    | 498    | 249    |
| Rate of Interest   | 10.50% | 10.50% | 10.50% |
| Interest on loan   | 52     | 52     | 26     |
|  |        |        |        |
| <b>Bonds Total</b>   |        |        |        |
| Opening Balance  | 628    | 498    | 498    |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments   | 130    | 0      | 498    |
| Net loan-Closing   | 498    | 498    | 0      |
| Average Loan   | 563    | 498    | 249    |
| Rate of Interest   | 10.33% | 10.50% | 10.50% |
| Interest on loan   | 58     | 52     | 26     |
|  |        |        |        |
| <b>UTI-IV</b>  |        |        |        |
| Opening Balance  | 740    | 0      | 0      |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayments   | 740    | 0      | 0      |
| Net loan-Closing   | 0      | 0      | 0      |
| Average Loan   | 370    | 0      | 0      |
| Rate of Interest   | 16.50% | 16.50% | 16.50% |
| Interest on loan   | 61     | 0      | 0      |
|  |        |        |        |
|  |        |        |        |
| <b>SUMITOMO-III (Replacement of IBJ-II- Tranche-A/Sumitomo-I)</b>        |        |        |        |
| Opening Balance  | 2204   | 2204   | 0      |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayment  | 0      | 2204   | 0      |
| Closing Balance  | 2204   | 0      | 0      |
| Average Loan-INR   | 2204   | 1102   | 0      |
| Rate of Interest   | 1.37%  | 1.37%  | 1.37%  |
| Interest-INR   | 30     | 15     | 0      |
| FERV   | 0      | 0      | 0      |
|  |        |        |        |
|  |        |        |        |
| <b>BAHRING<sup>1</sup> (Replacement of IBJ-II- Tranche-A/Sumitomo-I)</b> |        |        |        |
| Opening Balance  | 1      | 1      | 0      |
| Addition/Drawl   | 0      | 0      | 0      |
| Repayment  | 0      | 1      | 0      |
| Closing Balance  | 1      | 0      | 0      |
| Average Loan-INR   | 1      | 1      | 0      |
| Rate of Interest   | 5.85%  | 5.85%  | 5.85%  |
| Interest-INR   | 0.07   | 0.03   | 0.00   |

|   |               |               |               |
|---|---------------|---------------|---------------|
| FERV  | 0             | 0             | 0             |
|   |               |               |               |
| <b>SBI NY-II) (Replacement of IBJ-II Tranche B&amp;C)</b> |               |               |               |
| Opening Balance   | 964           | 482           | 0             |
| Addition/Drawl  | 0             | 0             | 0             |
| Repayment   | 482           | 482           | 0             |
| Closing Balance   | 482           | 0             | 0             |
| Average Loan-INR  | 723           | 241           | 0             |
| Rate of Interest  | 1.24%         | 1.24%         | 1.24%         |
| Interest-INR  | 9             | 3             | 0             |
| FERV  | 0             | 0             | 0             |
|   |               |               |               |
| <b>IBJ-II (TRANCHE-D)</b>                                 |               |               |               |
| Opening Balance   | 840           | 420           | 0             |
| Addition/Drawl  | 0             | 0             | 0             |
| Repayment   | 420           | 420           | 0             |
| Closing Balance   | 420           | 0             | 0             |
| Average Loan-INR  | 630           | 210           | 0             |
| Rate of Interest  | 0.52%         | 0.52%         | 0.52%         |
| Interest-INR  | 3             | 1             | 0             |
| FERV  | 0             | 0             | 0             |
|   |               |               |               |
| <b>IBJ-II- Total</b>                                      |               |               |               |
| Opening Balance   | 4009          | 3107          | 0             |
| Addition/Drawl  | 0             | 0             | 0             |
| Repayment   | 902           | 3107          | 0             |
| Closing Balance   | 3107          | 0             | 0             |
| Average Loan  | 3558          | 1554          | 0             |
| Rate of Interest  | 1.19%         | 1.23%         | 0.00%         |
| Interest-INR  | 42            | 19            | 0             |
| FERV  | 0             | 0             | 0             |
|   |               |               |               |
| <b>Total loan</b>   |               |               |               |
| Opening Balance   | 54610         | 46414         | 36774         |
| Addition/Drawl  | 0             | 0             | 0             |
| Repayment   | 8197          | 9639          | 7030          |
| Closing Balance   | 46414         | 36774         | 29744         |
| Average Loan  | 50512         | 41594         | 33259         |
| Rate of Interest  | <b>14.87%</b> | <b>15.34%</b> | <b>15.91%</b> |
| Interest  | 7509          | 6382          | 5292          |
| FERV  | 0             | 0             | 0             |

18. The computations of interest on notional loan by applying weighted average interest rate are appended hereinbelow:

**COMPUTATION OF INTEREST ON NOTIONAL LOAN**

(Rs. in lakh)

|   | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
|---|----------------|----------------|----------------|
| Gross loan-Opening                                  | 82091          | 82091          | 82091          |
| Cumulative repayments of Loans up to previous year  | 44274          | 52470          | 62110          |
| Net loan-Opening                                    | 37817          | 29620          | 19981          |
| Increase/ Decrease due to FERV                      | 0              | 0              | 0              |
| Increase/ Decrease due to Additional Capitalisation | 0              | 0              | 0              |
| Total   | 37817          | 29620          | 19981          |
| Repayments of Loans during the year                 | 8197           | 9639           | 7030           |
| Net loan-Closing                                    | 29620          | 19981          | 12951          |
| Average Net Loan                                    | 33719          | 24801          | 16466          |
| Rate of Interest on Loan                            | <b>14.87%</b>  | <b>15.34%</b>  | <b>15.91%</b>  |
| <b>Interest on loan</b>                             | <b>5012</b>    | <b>3805</b>    | <b>2620</b>    |

19. The reasons for differences between the petitioner's claim and that allowed are due to the following reasons:

- (a) Difference in weighted average rate of interest - 15.11%, 15.43% & 15.82% taken in the petition against 14.87%, 15.34% & 15.91% for the years 2001-02, 2002-03 and 2003-04 respectively considered for the purpose of tariff computation. The differences in weighted average rate of interest are due to consideration of interest rates on refinanced foreign loans having lower interest rate and non-consideration of financial charges in some of the loans,
- (b) Cumulative actual repayment of the loan up to 2000-01 has been considered,
- (c) Repayment of loan during 2001-02 to 2003-04 has been worked out on the basis of given at para 15 above, and

- (d) Due to disallowing of additional capital expenditure during the years 2001-2002 to 2003-2004.

### **DEPRECIATION**

20. The notification dated 26.3.2001, prescribes that the value base for the purpose of depreciation shall be historical cost of the asset and the depreciation shall be calculated annually as per straight line method at the rates of depreciation prescribed in the Schedule thereto.

21. Depreciation for the tariff period has been calculated by taking the individual assets and their depreciation rates as per the notification dated 26.3.2001. The weighted average rate of depreciation works out to 3.72% against 3.73% claimed in the petition. Depreciation has been allowed at opening gross block of Rs. 164181.00 lakh. The petitioner is entitled to an amount of Rs.6111.00 lakh each year during the tariff period on account of depreciation. While allowing tariff, depreciation recovered in tariff up to 31.3.2001, as per the Commission's order dated 18.5.2004 in Petition No.128/2002 has been taken into account.

22. The reasons for the difference between the petitioner's claim and the amount allowed on account of depreciation are

- (a) Rejection of the petitioner's claim for additional capitalization for the years 2001-2002 to 2003-2004, and
- (b) Consideration of weighted average depreciation rate of 3.72 % as against 3.73% claimed in the petition.

### **ADVANCE AGAINST DEPRECIATION**

23. As per the notification dated 26.3.2001, Advance Against Depreciation shall be permitted wherever originally scheduled loan repayment exceeds the depreciation allowable and shall be computed as follows:

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.

24. The gross loan and actual repayment as on 1.4.2001 have been considered for computing Advance Against Depreciation. The petitioner is entitled to claim any Advance Against Depreciation Rs. 730 lakh each year as shown below:

(Rs. in lakh)

|                                     | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
|-------------------------------------|----------------|----------------|----------------|
| 1/12 <sup>th</sup> of Loan(s)       | 6841           | 6841           | 6841           |
| Scheduled Repayment of the Loan(s)  | 8197           | 9639           | 7030           |
| Minimum of the above                | 6841           | 6841           | 6841           |
| Depreciation during the year        | 6111           | 6111           | 6111           |
| <b>Advance Against Depreciation</b> | <b>730</b>     | <b>730</b>     | <b>730</b>     |

25. The reasons for the difference between the petitioner's claim and the amount allowed on account of advance against depreciation is primarily because of rejection of the petitioner's claim for additional capitalization for the years 2001-2002 to 2003-2004.

### **O&M EXPENSES**

26. As per the notification dated 26.3.2001, operation and maintenance (O&M) expenses including insurance for the stations belonging to the petitioner, in operation

for 5 years or more in the base year of 1999-2000, are derived on the basis of actual O & M expenses, excluding abnormal O & M expenses, if any, for the years 1995-1996 to 1999-2000 duly certified by the statutory auditors. The average of actual O & M expenses for the years 1995-1996 to 1999-2000 is considered as O & M expenses for the year 1997-1998 which is escalated twice at the rate of 10% per annum to arrive at O & M expenses for the base year 1999-2000. Thereafter, the base O & M expenses for the year 1999-2000 are further escalated at the rate of 6% per annum to arrive at permissible O & M expenses for the relevant year. The notification dated 26.3.2001 further provides that 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 by applying actual escalation factor arrived on the basis of weighted price index of CPI for industrial workers (CPI\_IW) and index of selected component of WPI(WPIOM) for which the petitioner shall approach the Commission with an appropriate petition.

27. The petitioner has claimed the following O & M expenses:

| (Rs. in lakh) |           |           |           |
|---------------|-----------|-----------|-----------|
| Year          | 2001-2002 | 2002-2003 | 2003-2004 |
| O&M Expenses  | 10800     | 11448     | 12135     |

28. The petitioner has claimed the above O&M expenses based on actual O&M expenses for the years 1996-1997 to 2000-2001, which is not as per the methodology specified in the notification dated 26.3.2001 and reproduced in para 26 above. According to the petitioner, O&M expenses for the years 1995-1996 to 1999-2000 are as follows (Form-16):

(Rs. in lakh)

| Year  | 1995-1996 | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
|---|-----------|-----------|-----------|-----------|-----------|
| <b>O&amp;M</b>                              | 4259      | 6076      | 6756      | 8224      | 9738      |
| Water charges                               | 40        | 30        | 13        | 28        | 31        |
| <b>Total O&amp;M with out water charges</b> | 4219      | 6046      | 6743      | 8196      | 9707      |

29. The petitioner's claim on account of O&M expenses has been examined in terms of the notification dated 26.3.2001 as discussed in the succeeding paragraphs.

**Employee Cost:**

30. The petitioner has indicated following amounts under this head for 1995-1996 to 1999-2000: -

(Rs. in lakh)

| 1995-1996 | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
|-----------|-----------|-----------|-----------|-----------|
| 1033.55   | 1636.42   | 2170.76   | 2588.58   | 2888.82   |

31. There has been increase of 58% and 33% in the years 1996-1997 and 1997-1998 respectively over the respective previous year. The petitioner has clarified that the employee cost has increased in 1996-1997 due to fact that in 1995-1996, sum of Rs.250 lakh was taken in IEDC since all the units were not declared commercial as such expenditure in 1995-1996 is on lower side and the increase is on account of pay revision of employees, due from 1.4.1997 and, therefore, a provision was kept in 1997-98 for higher wages to employees. The increase in 1999-2000 is also due to pay revision, which was finally implemented during the year. The petitioner has also claimed incentive and *ex gratia* paid to the employees under the employee cost. The petitioner has clarified that incentive and *ex gratia* payments are under the productivity linked bonus scheme. The respondents have contested that incentive and *ex gratia*

should not be included in the employee cost, should be payable from the incentive earned by the petitioner and should not be charged from beneficiaries in the O&M cost. The Commission's policy in this regard is to allow only the obligatory minimum bonus payable under the Payment of Bonus Act. As such, the following amount of incentive and *ex gratia* has not been considered for arriving at the normalised O&M expenses for the purpose of tariff:

(Rs. in lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 119.30           | 179.60           | 125.10           | 414.70           | 298.40           |

32. Therefore, the following normalized employee cost in O&M expenses has been considered for 1995-1996 to 1999-2000:

(Rs. in lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 915.30           | 1456.80          | 2045.70          | 2173.80          | 2590.50          |

### **Repair and Maintenance Charges**

33. The petitioner has indicated the following amounts under the head "repair and maintenance" for the years 1995-1996 to 1999-2000:

(Rs. in lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 1737.10          | 2376.00          | 2428.91          | 3067.14          | 3547.88          |

34. There has been increase of 37% and 26% in 1996-1997 and 1998-1999 over the expenses for the previous year. The petitioner has clarified that in the year 1996-1997, the increase is due to 3 units having gone under overhaul as against 2 units in

1995-1996 and increase of 26.28% in 1998-1999 is due to overhauling of 3 boilers in addition to other overhauling of the unit. We accept the explanation. As such, the amounts as indicated by the petitioner have been considered to arrive at normalized O&M charges.

**Stores**

35. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000: -

| (Rs. in lakh)    |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|
| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
| 112.42           | 141.55           | 98.78            | 113.18           | 99.64            |

36. There has been increase of 26% in 1996-1997 over the previous year's expenses. According to the petitioner, this is on account of bulk procurement of stores during 1996-1997. In view of this, the amounts indicated by the petitioner have been considered to arrive at the normalized O&M expenses.

**Power Charges**

37. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000: -

| (Rs. in lakh)    |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|------------------|
| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
| 61.57            | 87.84            | 100.11           | 103.62           | 125.78           |

38. The respondents have questioned the admissibility of power charges claimed by the petitioner. The respondents have contended that the claim results in double payment by them as they are paying separately for auxiliary consumption on normative basis. On the issue, the petitioner has explained during the hearings that these power charges pertain to colony power consumption taken directly from the power stations and do not include any construction power. However, the charges booked under O&M are only the energy charges and fixed charges are not claimed. It has been further clarified that the payment received from the employees for the power consumed in residential quarters is credited to the revenue account and only net power charges for colony power consumption is charged to O&M. As such, there is no double payment by the respondent-beneficiaries. It is contended by the petitioner that in case the power had been procured from the state utility, then also power charges for the colony infrastructure would have been booked under O&M. We are satisfied with the explanation furnished by the petitioner.

39. There has been increase of 43% in 1996-1997, 21% in 1999-2000 over the previous year. The petitioner has clarified that the increase in 1996-1997 is due to change in allocation ratio and increase in consumption and in 1995-1996 part of expenditure was booked to IEDC. The increase in 1999-2000 is due to change of rate and higher consumption. In view of the explanation furnished, power charges as indicated by the petitioner have been considered to arrive at the normalised O&M charges.

### **Water Charges**

40. The petitioner has indicated following amounts under this head for the years 1995-1996 to 1999-2000:-

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 39.88            | 30.00            | 13.29            | 28.08            | 31.46            |

41. It is seen that water charges decreased in the years 1996-1997 and 1997-1998 over the respective previous year. The reasons for such decrease have not been explained by the petitioner. However, in case of Dadri GPS in Petition No. 44/2001, the petitioner had clarified that water charges in a particular year are allocated between Dadri GPS and NCTPS Dadri. No such allocation was made in the year 1995-1996 and 1996-1997 for Dadri GPS and water charges were indicated as zero. It appears that the entire water charges were booked to NCTPS in 1995-1996 and 1996-1997. The allocation started from the year 1997-1998 after commissioning of all the units of Dadri GPS. Water charges for Dadri GPS for 1997-1998 were Rs. 7.29 lakh. Therefore, total water charges for NCTPS, Dadri and Dadri GPS work out to Rs. 20.58 lakh (7.29+13.29), which are less than water charges for 1995-1996 and 1996-1997. This could be due to commissioning activities in these years at Dadri GPS. Therefore water charges for 1995-1996 and 1996-1997 are not considered representative values. There has been an increase of 111% in the year 1998-1999. The petitioner has clarified that the increase in 1998-1999 is due to increase in royalty from 50000 to 150000 per cubic meter per year since June 1998. The water charges for the year 1999-2000 could only be considered representative for the normalization for future. Accordingly, water charges for the tariff period have been considered

separately based on water charges for 1999-2000 with escalation at 6% in each subsequent year.

### **Communication Expenses**

42. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000:

(Rs. In lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 22.27            | 17.45            | 21.49            | 26.88            | 26.65            |

43. There has been an increase of 23% in 1997-1998 and 25% in 1998-1999 over the previous year's expenses under this head. The petitioner has clarified that the communication expenses in 1997-1998 have increased due to installation of additional telephones and the increase of 25% in 1998-1999 is due to increase in telephone charges. We have accepted the clarification and the amounts indicated have been considered to arrive at normalized O&M charges.

### **Insurance**

44. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000:-

(Rs. In lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 161.86           | 252.74           | 231.43           | 241.82           | 231.97           |

45. There has been increase in expenditure to the extent of 56% in 1996-1997 over the expenses for the previous year. The petitioner has clarified that in 1995-1996, a part of insurance expenses was taken in IEDC and in 1996-1997 additional scope coverage was taken. The amounts indicated by the petitioner have been considered to arrive at normalized O&M charges as the clarification has been found to be satisfactory.

**Security Expenses**

46. The petitioner has indicated the following amounts under the head "security expenses" for 1995-1996 to 1999-2000:-

| (Rs. in lakh) |           |           |           |           |
|---------------|-----------|-----------|-----------|-----------|
| 1995-1996     | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
| 148.06        | 179.13    | 175.17    | 234.97    | 299.53    |

47. There has been increase of 21%, 34% and 27 % in 1996-1997, 1998-1999 and 1999-2000 over the respective previous years' expenses. The petitioner has submitted that the increases are partly on account of additional deployment of CISF and partly because of the revision of salaries of CISF personnel deployed consequent to implementation of the recommendations of Fifth Pay Commission. For the reasons explained, the amounts claimed by the petitioner have been considered for the purpose of normalisation of O&M charges.

**Professional Expenses**

48. The petitioner has submitted the following details of the amounts under the head "professional expenses" for 1995-1996 to 1999-2000:-

| (Rs. in lakh) |           |           |           |           |
|---------------|-----------|-----------|-----------|-----------|
| 1995-1996     | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
| 0.59          | 1.16      | 2.32      | 4.35      | 13.37     |

49. There has been increase of 97%, 100%, 88% and 207% in the years 1996-1997, 1997-1998, 1998-1999 and 1999-2000 respectively over the respective previous year. The petitioner has clarified that the increase is due to the contract awarded for physical verification of fixed assets/ stores. The expenses under this head are considered to be insignificant and as such these amounts have been considered to arrive at normalized O&M cost.

#### **Printing & Stationery**

50. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000: -

| (Rs. in lakh) |           |           |           |           |
|---------------|-----------|-----------|-----------|-----------|
| 1995-1996     | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
| 19.88         | 22.61     | 21.15     | 26.13     | 24.42     |

51. There has been an increase of 24% in the year 1998-1999 over the previous year's expenditure. The petitioner has clarified that it is due to bulk purchase of stationery in the concerned year. In view of the submission, the amounts as indicated have been considered to arrive at the normalized O&M expenses.

**Other expenses**

52. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000:-

(Rs. in lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 262.66           | 430.97           | 406.94           | 563.83           | 829.65           |

53. There has been an increase of 64%, 39% and 47% in the years 1996-1997, 1998-1999 and 1999-2000 over the respective previous year. The petitioner has clarified that the increase is due to more tree plantation and horticulture expenses and towards statutory obligation of environment protection and in 1995-1996 part of expenses was considered in IEDC. In view of the obligatory nature of expenses, these have been considered for normalization.

**Corporate Office Expenses**

54. The petitioner has made the following allocation of corporate office expenses to the station for 1995-1996 to 1999-2000:-

(Rs. in lakh)

| <b>1995-1996</b> | <b>1996-1997</b> | <b>1997-1998</b> | <b>1998-1999</b> | <b>1999-2000</b> |
|------------------|------------------|------------------|------------------|------------------|
| 536.30           | 772.54           | 979.28           | 1102.94          | 1488.67          |

55. As clarified by the petitioner, the expenses common to Operational and Construction activities are allocated to Profit and Loss Account and Incidental Expenditure during Construction in proportion of sales to annual capital outlay. The corporate office expense details furnished by the petitioner are those charged to

revenue only. These corporate office and other common expenses chargeable to revenue are allocated to the projects on the basis of sales.

56. There has been increase of 44%, 27% and 35% in corporate office expenses in the years 1996-1997, 1997-1998 and 1999-2000 respectively over the respective previous year. The increases are on account of wage revision of the corporate office employees. As discussed above, in the case of project employee cost, the increases on account of wage revision have been allowed for calculation of the normalised O&M expenses after deducting incentive and *ex gratia*. Similarly, in case of corporate office expenses also, the incentive and *ex gratia* have not been considered in direct employee expenses.

57. Schedule 13 of the Company balance sheets for different years reveals Rs. 55 lakh, Rs.0.40 lakh, Rs. 85 lakh and Rs. 2800 lakh as donations for the years 1996-1997 to 1999-2000 respectively. The donations were made for the benefit of society or for some social cause for which the petitioner deserves appreciation, donations cannot be directly attributed to the business of power generation, the activity in which the petitioner is engaged. Accordingly, these donations cannot be passed on to the beneficiaries. Therefore, the donation amounts have not been considered in the corporate office expenses.

58. After excluding the proportionate amount for incentive, *ex gratia*, and donations, the following amounts in corporate office expenses in respective year have been considered towards the normalised O&M expenses for the station:

| (Rs. in lakh) |           |           |           |           |           |
|---------------|-----------|-----------|-----------|-----------|-----------|
| Year          | 1995-1996 | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 |
| Amount        | 515.86    | 734.10    | 953.32    | 1035.97   | 1218.96   |

**Expenses under Remaining Heads**

59. Under all remaining heads, increases are within the permissible limit of 20%. Therefore, amounts indicated by the petitioner have been considered to arrive at the normalised O&M charges. O&M computation done in accordance with the methodology prescribed in the notification dated 26.3.2001.

60. A comparative tabular statement of the year-wise O&M expenses claimed by the petitioner and allowed by us is extracted hereunder:

|    |                            | 1995-1996      |                | 1996-97        |                | 1997-1998      |                | 1998-1999      |                | 1999-2000      |                | 1995-1996 to 1999-2000 |                    |
|----|----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------|--------------------|
|    |                            | As Claimed     | As Allowed     | Average As Claimed     | Average as Allowed |
| 1  | Employee cost              | 1033.55        | 915.30         | 1636.42        | 1456.80        | 2170.76        | 2045.70        | 2588.58        | 2173.80        | 2888.82        | 2590.50        | 2063.63                | 1836.42            |
| 2  | Repair and Maintenance     | 1737.10        | 1737.10        | 2376.00        | 2376.00        | 2428.91        | 2428.91        | 3067.14        | 3067.14        | 3547.88        | 3547.88        | 2631.41                | 2631.41            |
| 3  | Stores consumed            | 112.42         | 112.42         | 141.55         | 141.55         | 98.78          | 98.78          | 113.18         | 113.18         | 99.64          | 99.64          | 113.11                 | 113.11             |
| 4  | Power charges              | 61.57          | 61.57          | 87.84          | 87.84          | 100.11         | 100.11         | 103.62         | 103.62         | 125.78         | 125.78         | 95.78                  | 95.78              |
| 5  | Water Charges              | 39.88          | 39.88          | 30.00          | 30.00          | 13.29          | 13.29          | 28.08          | 28.08          | 31.46          | 31.46          | 28.54                  | 28.54              |
| 6  | Communication expenses     | 22.27          | 22.27          | 17.45          | 17.45          | 21.49          | 21.49          | 26.88          | 26.88          | 26.65          | 26.65          | 22.95                  | 22.95              |
| 7  | Traveling expenses         | 122.69         | 122.69         | 127.99         | 127.99         | 106.15         | 106.15         | 122.12         | 122.12         | 129.92         | 129.92         | 121.77                 | 121.77             |
| 8  | Insurance                  | 161.86         | 161.86         | 252.74         | 252.74         | 231.43         | 231.43         | 241.82         | 241.82         | 231.97         | 231.97         | 223.96                 | 223.96             |
| 9  | Rent 0.00                  | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00           | 0.00                   | 0.25               |
| 10 | Security expenses          | 148.06         | 148.06         | 179.13         | 179.13         | 175.17         | 175.17         | 234.97         | 234.97         | 299.53         | 299.53         | 207.37                 | 207.37             |
| 11 | Professional expenses      | 0.59           | 0.59           | 1.16           | 1.16           | 2.32           | 2.32           | 4.35           | 4.35           | 13.37          | 13.37          | 4.36                   | 4.36               |
| 12 | Printing & Stationary      | 19.88          | 19.88          | 22.61          | 22.61          | 21.15          | 21.15          | 26.13          | 26.13          | 24.42          | 24.42          | 22.84                  | 22.84              |
| 13 | Other Expenses             | 262.66         | 262.66         | 430.97         | 430.97         | 406.94         | 406.94         | 563.83         | 563.83         | 829.65         | 829.65         | 498.81                 | 498.81             |
| 14 | Corporate office expenses  | 536.30         | 515.86         | 772.54         | 734.10         | 979.28         | 953.32         | 1102.94        | 1035.97        | 1488.67        | 1218.96        | 975.95                 | 891.64             |
| 15 | Total O&M                  | <b>4258.83</b> | <b>4120.14</b> | <b>6076.40</b> | <b>5858.34</b> | <b>6755.78</b> | <b>6604.76</b> | <b>8223.64</b> | <b>7741.89</b> | <b>9737.76</b> | <b>9169.73</b> | <b>7010.48</b>         | <b>6698.97</b>     |
| 16 | O &M without water Charges | <b>4218.95</b> | <b>4080.26</b> | <b>6046.40</b> | <b>5828.34</b> | <b>6742.49</b> | <b>6591.47</b> | <b>8195.56</b> | <b>7713.81</b> | <b>9706.30</b> | <b>9138.27</b> | <b>6981.94</b>         | <b>6670.43</b>     |

61. O & M expenses allowed in tariff are summarised below:

| Year                                   | (Rs. in lakh) |                             |                |                |                 |
|--|---------------|-----------------------------|----------------|----------------|-----------------|
|  | 1999-2000     | 2000-2001<br>(Base<br>Year) | 2001-<br>2002  | 2002-<br>2003  | 2003-<br>2004   |
| O&M expenses claimed                   |               | <b>10189</b>                | <b>10800</b>   | <b>11448</b>   | <b>12135</b>    |
| Normalized O&M excluding water charges | 8071.22       |                             |                |                |                 |
| Water Charges                          | 31.46         |                             |                |                |                 |
| Total Normalized O&M Expenses          | 8102.68       | <b>8588.84</b>              |                |                |                 |
| <b>O&amp;M Expenses</b>                |               |                             | <b>9104.17</b> | <b>9650.42</b> | <b>10229.44</b> |

62. The petitioner has claimed water charges separately. As the O&M charges allowed include water charges, these have not been approved separately.

### **INTEREST ON WORKING CAPITAL**

63. Working capital has been calculated considering the following elements:

- (a) Fuel Cost: As per the notification dated 26.3.2001, fuel cost for one month corresponding to normative Target Availability is to be included in the working capital. Accordingly, the fuel cost is worked out for one month on the basis of operational parameters given in the notification dated 26.3.2001. The fuel cost allowed in working capital is given hereunder:

|  | <b>2001-2002</b> | <b>2002-2003</b> | <b>2003-2004</b> |
|--|------------------|------------------|------------------|
| Oil Stock -1 Month (KL)                  | 1716.96          | 1716.96          | 1721.66          |
| Oil Stock -1 Month (Rs. in Lakh)         | 130              | 130              | 130              |
| Coal Stock -1 month (mt)                 | 317954           | 317954           | 318825           |
| Coal Stock -1 month (Rs. in Lakh)        | 6160.19          | 6160.19          | 6177.07          |
| <b>Fuel Cost - 1 month (Rs. in lakh)</b> | <b>6290.27</b>   | <b>6290.27</b>   | <b>6307.50</b>   |

- (b) Coal Stock: As per the notification dated 26.3.2001 cost of reasonable fuel stock as actually maintained but limited to 15 days for pithead station and thirty days for non-pithead stations, corresponding to normative Target Availability should form part of working capital. Accordingly, the coal stock has been worked out for 30 days on the basis of operational parameters and weighted average price of coal. The actual stock as per audited balance sheet of NCTPS Dadri for the year 2000-2001 has been considered in the calculation since its value is lower than normative coal stock for 30 days. The cost of coal stock considered has been computed as shown below:

|   | <b>2001-2002</b> | <b>2002-2003</b> | <b>2003-2004</b> |
|---|------------------|------------------|------------------|
| Weighted Avg. GCV of Coal (kcal/kg)   | 3803.56          | 3803.56          | 3803.56          |
| Heat Contribution by Coal (kCal/kwh)  | 2465.25          | 2465.25          | 2465.25          |
| Specific Coal Consumption (kg/kWh)  | 0.65             | 0.65             | 0.65             |
| Annual Requirement of Coal (mt)   | 3815442          | 3815442          | 3825896          |
| Coal Stock (15 days) (mt)   | 313598           | 313598           | 313598           |
| Weighted Avg. Price of Coal (Rs./mt)  | 1937.45          | 1937.45          | 1937.45          |
| <b>Coal Stock-15 days- (Rs. in Lakh)</b>  | <b>6075.80</b>   | <b>6075.80</b>   | <b>6075.80</b>   |
| <b>Coal Stock-Actual as per audited Balance Sheet for 2000-2001 (Rs. in lakh)</b> | <b>4360</b>      | <b>4360</b>      | <b>4360</b>      |

- (c) Oil Stock: As per the notification dated 26.3.2001, 60 days stock of secondary fuel oil, corresponding to normative Target Availability is permissible. Accordingly, the oil stock considered for 60 days as per the operational parameters and weighted average price of oil has been considered, the details of which are extracted below:

|  | <b>2001-02</b> | <b>2002-03</b> | <b>2003-04</b> |
|--|----------------|----------------|----------------|
| Weighted Avg. GCV of Oil (kcal/Lit.)     | 9927.84        | 9927.84        | 9927.84        |
| Heat Contribution by Oil (kcal/kWh)      | 34.75          | 34.75          | 34.75          |
| Annual Requirement of Oil (ltrs)         | 20603520       | 20603520       | 20659968       |
| Oil Stock(60 days) (KL)                  | 3386.88        | 3386.88        | 3386.88        |
| Weighted Avg. Price of Oil (Rs./KL)      | 7576.01        | 7576.01        | 7576.01        |
| <b>Oil Stock- 60 days- (Rs. in lakh)</b> | <b>256.59</b>  | <b>256.59</b>  | <b>256.59</b>  |

- (d) O&M Expenses: As per the notification dated 26.3.2001, operation and maintenance expenses (cash) for one month are permissible as a part of the working capital. Accordingly, O&M expenses for working capital have been worked out for 1 month of O&M expenses approved above are considered in tariff of the respective year.
- (e) Spares: As per the notification dated 26.3.2001, maintenance spares at actuals subject to a maximum of 1% of the capital cost but not exceeding 1 year's requirements less value of 1/5<sup>th</sup> of initial spares already capitalised for first 5 years are required to be considered in the working capital. Accordingly, actual spares consumption/one year requirement has been worked out in the similar manner as prescribed for O&M expenses in the notification dated 26.3.2001, that is, the average of actual spares consumption for the years 1995-1996 to 1999-2000 has been considered as spares consumption for the year 1997-98, which has been escalated twice at the rate of 10% per annum to arrive at spares consumption for the base year 1999-2000, and the base spares consumption for the year 1999-2000 has been further escalated at the rate of 6% per annum to arrive at permissible spares consumption for the relevant year. The above amount has been restricted to 1% of capital cost as on 1.4.2001. As the plant is more than 5 years old, deduction of 1/5<sup>th</sup> of initial spares is not applicable. The calculations in support of spares allowed in working capital are as under:

(Rs. in lakh)

| Spares  |           |           |           |           |           | Average                | Base      | Base      | Tariff Period |             |             |
|---|-----------|-----------|-----------|-----------|-----------|------------------------|-----------|-----------|---------------|-------------|-------------|
|   | 1995-1996 | 1996-1997 | 1997-1998 | 1998-1999 | 1999-2000 | 1995-1996 to 1999-2000 | 1999-2000 | 2000-2001 | 2001-2002     | 2002-2003   | 2003-2004   |
| Actual Consumption as per Audited Balance Sheet | 862       | 1330      | 1390      | 1786      | 2101      |                        |           |           |               |             |             |
| Calculation of Base Spares                      | 862       | 1330      | 1390      | 1786      | 2101      | 1494                   | 1808      | 1916      | 2031          | 2153        | 2282        |
| 1% of Average Capital Cost                      |           |           |           |           |           |                        |           |           | 1642          | 1642        | 1642        |
| <b>Minimum of the above allowed as spares</b>   |           |           |           |           |           |                        |           |           | <b>1642</b>   | <b>1642</b> | <b>1642</b> |

- (f) Receivables: As per the notification dated 26.3.2001, receivables will be equivalent to two months average billing for sale of electricity calculated on normative Plant Load Factor/Target Availability. The receivables have been worked out on the basis of two months of fixed and variable charges. The supporting calculations in respect of receivables are tabulated hereunder:

#### Computation of receivables component of Working Capital

(Rs. in lakh)

|                                   | 2001-2002       | 2002-2003       | 2003-2004       |
|-----------------------------------|-----------------|-----------------|-----------------|
| Variable Charges                  |                 |                 |                 |
| Coal (Rs/kWh)                     | 1.3876          | 1.3876          | 1.3876          |
| Oil (Rs/kWh)                      | 0.0293          | 0.0293          | 0.0293          |
| Rs./kWh                           | 1.4169          | 1.4169          | 1.4169          |
| Variable Charges per year         | 75483           | 75483           | 75690           |
| <b>Variable Charges -2 months</b> | <b>12580.54</b> | <b>12580.54</b> | <b>12615.00</b> |
| Fixed Charges - 2 months          | 6339            | 6230            | 6131            |
| <b>Receivables</b>                | <b>18919</b>    | <b>18810</b>    | <b>18746</b>    |

- (g) Working Capital Margin: The notification dated 26.3.2001 is silent on Working Capital Margin. The Commission had considered the Working Capital Margin of Rs.5951 lakh while awarding tariff for the period

1.4.1998 to 31.3.2001 vide order dated 18.5.2004 in Petition No.128.2002. Accordingly, Working Capital Margin of Rs.5951 lakh has been considered in the working. 50% of the Working Capital Margin has been considered as equity and the remaining 50% as loan. Return on equity and interest on loan have been allowed on the respective portion of Working Capital Margin.

64. The average SBI PLR of 11.50% has been considered as the rate of interest on working capital during the tariff period 2001-02 to 2003-04, in line with the Commission's earlier decision, though the petitioner has claimed interest @ 12.35%..

65. The necessary details in support of calculation of Interest on Working Capital are appended below:

#### **Calculation of Interest on Working Capital**

(Rs. in lakh)

|  | <b>2001-2002</b> | <b>2002-2003</b> | <b>2003-2004</b> |
|--|------------------|------------------|------------------|
| Fuel Cost                                | 6290             | 6290             | 6308             |
| Coal Stock                               | 4360             | 4360             | 4360             |
| Oil stock                                | 257              | 257              | 257              |
| O & M expenses                           | 759              | 804              | 852              |
| Spares                                   | 1642             | 1642             | 1642             |
| Receivables                              | 18919            | 18810            | 18746            |
| <b>Total Working Capital</b>             | <b>32226</b>     | <b>32163</b>     | <b>32165</b>     |
| Working Capital Margin (WCM)             | 5951             | 5951             | 5951             |
| <b>Total Working Capital allowed</b>     | <b>26275</b>     | <b>26212</b>     | <b>26214</b>     |
| Rate of Interest                         | 11.50%           | 11.50%           | 11.50%           |
| Interest on allowed Working Capital      | 3022             | 3014             | 3015             |
| Interest on WCM                          | 442              | 457              | 473              |
| Return on WCM                            | 476              | 476              | 476              |
| <b>Total Interest on Working capital</b> | <b>3940</b>      | <b>3947</b>      | <b>3964</b>      |

66. The reasons for the difference between the petitioner's claim and the amount allowed on account of Interest on Working Capital are:

(a) Difference in O&M expenses,

- (b) 40% of O&M expenses in the petition against actual spare consumption/one year requirement worked out restricted to 1% of capital cost as on 1.4.2001,
- (c) Due to difference in variable charges and various components of fixed charges,
- (d) Due to difference in various components of working capital, and
- (e) Adoption of SBIPLR as on 1.4.2001,

**ANNUAL FIXED CHARGES**

67. The annual fixed charges for the period 1.4.1999 to 31.3.2004 allowed in this order are summed up as below:

(Rs. in lakh)

|   | <b>Particulars</b>           | <b>2001-2002</b> | <b>2002-2003</b> | <b>2003-2004</b> |
|---|------------------------------|------------------|------------------|------------------|
| 1 | Interest on Loan             | 5012             | 3805             | 2620             |
| 2 | Interest on Working Capital  | 3940             | 3947             | 3964             |
| 3 | Depreciation                 | 6111             | 6111             | 6111             |
| 4 | Advance against Depreciation | 730              | 730              | 730              |
| 5 | Return on Equity             | 13134            | 13134            | 13134            |
| 6 | O & M Expenses               | 9104             | 9650             | 10229            |
|   | <b>TOTAL</b>                 | <b>38032</b>     | <b>37378</b>     | <b>36789</b>     |

**ENERGY/VARIABLE CHARGES**

68. The petitioner has claimed the energy charges based on the operational norms applicable to coal based projects as per the notification dated 26.3.2001 for the tariff period 2001-2004.

69. The fuel price and GCV furnished by the petitioner for the month of Jan, Feb, and March 2001 in the petition have been considered for the Base Energy Charge computation. We have adopted the unit price of coal as per PSL after deliberating on the issue in detail based on the presentation made by the petitioner on 8.4.2003 and the information furnished by the petitioner subsequently. The Base Energy Charges (BEC) computed based on the data furnished by the petitioner are summarised below:

**Computation of Energy Charges**

| Description                                     | Unit      | As considered |
|---|-----------|---------------|
| Capacity  | MW        | 840.00        |
| No. of operating hours corresponding to PLF 80% | 80%       | 7008.00       |
| Gross Station Heat Rate                         | kCal/kWh  | 2500.00       |
| Specific Fuel Oil Consumption                   | MI/kWh    | 3.50          |
| Aux. Energy Consumption                         | %         | 9.50          |
| Weighted Average GCV of HFO                     | kCal/l    | 9927.84       |
| Weighted Average GCV of Coal                    | kCal/Kg   | 3803.56       |
| Weighted Average Price of HFO                   | Rs./KL    | 7576.01       |
| Weighted Average Price of Coal                  | Rs./MT    | 1937.45       |
| Rate of Energy Charge from Sec. Fuel Oil        | Paise/kWh | 2.65          |
| Heat Contributed from SFO                       | kCal/kWh  | 34.75         |
| Heat Contributed from Coal                      | kCal/kWh  | 2465.25       |
| Specific Coal Consumption                       | Kg/kWh    | 0.65          |
| Rate of Energy Charge from Coal                 | Paise/kWh | 125.57        |
| Rate of Energy Charge ex-bus per kWh Sent       | Paise/kWh | 141.69        |

70. The Base Energy Charges have been calculated on base value of GCV, base price of fuel and normative operating parameters as indicated in the above table and are subject to fuel price adjustment. The notification dated 26.3.2001 provides for fuel price adjustment for variation in fuel price and GCV of fuels. Accordingly, the base energy charges approved shall be subject to adjustment. The formula applicable for fuel price adjustment shall be as given below: -

$$\mathbf{FPA = A + B}$$

**Where,**

**FPA** – Fuel price Adjustment for a month in Paise/kWh Sent out

**A** – Fuel price adjustment for Secondary Fuel oil in Paise/kWh sent out

**B** – Fuel price adjustment for Coal in Paise/kWh sent out

**And,**

$$\mathbf{A = \frac{10 \times (SFC_n)}{(100 - AC_n)} \left\{ (P_{om}) - (P_{os}) \right\}}$$

$$\mathbf{B = \frac{10}{(100 - AC_n)} \left[ (SHR_n) \left\{ (P_{cm}/K_{cm}) - (P_{cs}/K_{cs}) \right\} - (SFC_n) \left\{ (k_{om} \times P_{cm}/K_{cm}) - (k_{os} \times P_{cs}/K_{cs}) \right\} \right]}$$

**Where,**

$SFC_n$  – Normative Specific Fuel Oil consumption in l/kWh

$SHR_n$  – Normative Gross Station Heat Rate in kCal/kW

$AC_n$  – Normative Auxiliary Consumption in percentage

$P_{om}$  – Weighted Average price of fuel oil as per PSL for the month in Rs./KL.

$K_{om}$  – Weighted average GCV of fuel oils fired at boiler front for the month in Kcal/Litre

$P_{os}$  – Base value of price of fuel oils as taken for determination of base energy charge in tariff order in Rs. / KL.

$K_{os}$  – Base value of gross calorific value of fuel oils as taken for determination of base energy charge in tariff order in Kcal/Litre

$P_{cm}$  – Weighted average price of coal as per PSL for the month at the power station in Rs. / MT.

$K_{cm}$  – Weighted average gross calorific value of coal fired at boiler front for the month in Kcal/Kg

- $P_{cs}$  – Base value of price of coal as taken for determination of base energy charge in tariff order in Rs. /MT
- $K_{cs}$  – Base value of gross calorific value of coal as taken determination of base energy charge in tariff order in kCal/Kg

71. In addition to the charges approved above, the petitioner is entitled to recover other charges also like incentive, claim for reimbursement of Income-tax, other taxes, cess levied by a statutory authority, Development Surcharge and other charges in accordance with the notification dated 26.3.2001, as applicable. This is subject to the orders, if any, of the superior courts. The petitioner shall also be entitled to recover the filing fee of Rs. 10 lakh paid in the present petition from the respondents in ten equal monthly installments of Rs. one lakh each in proportion of fixed charges payable by them. This is subject to confirmation that the amount is not already included in the O&M charges.

72. Uttar Pradesh Power Corporation Limited, Respondent No.1 has filed an interlocutory application (IA No 35/2003) to seek a direction to the petitioner to charge tariff at the reduced rate of 80% of the fixed cost being charged provisionally till determination of final tariff by the Commission. As this order decides the final tariff for the period from 2001-2002 to 2003-2004, no separate order needs to be passed on the IA, which has become infructuous and gets disposed of through this order.

73. This order disposes of Petition No 40/2001.

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

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

**New Delhi dated the 20<sup>th</sup> July, 2004**