

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram :

- 1. Shri. Ashok Basu, Chairperson**
- 2. Shri Bhanu Bhushan, Member**
- 3. Shri A.H. Jung, Member**

Petition No. 163/2004

In the matter of

Approval of tariff in respect of Tanda Thermal Power Station, (440 MW) for the period from 1.4.2004 to 31.3.2009.

And in the matter of

NTPC Ltd., New Delhi

... **Petitioner**

Vs

Uttar Pradesh Power Corporation Ltd, Lucknow

--- **Respondent**

The following were present

1. Shri V.B.K.Jain, NTPC
2. Shri I.J.Kapoor, NTPC
3. Shri D.G.Salpekar, NTPC
4. Shri S.D.Jha, NTPC
5. Shri R.Singhal, NTPC
6. Shri Guryog Singh, NTPC
7. Shri Ajay Sardana , NTPC
8. Shri Manoj Saxena, NTPC
9. Shri Robin Majumdar, NTPC
10. Shri D.Kar, NTPC
11. Shri Vivek Kumar, NTPC
12. Shri Pranav Kapoor, NTPC
13. Ms Alka Saigal, NTPC
14. Shri T.K.Srivastava, UPPCL.

**ORDER
(DATE OF HEARING : 13.12.2005)**

This petition has been filed by the petitioner, NTPC Limited, a generating company owned or controlled by the Central Government for approval of tariff in respect of Tanda Thermal Power Station (440 MW), (hereinafter referred to as “the

generating station”) 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 filed I.A. No. 53/2005 to revise the tariff claim on the basis of increase in coal prices from 15.6.2004 and anticipated wage revision from 1.1.2007. The petitioner was also called upon to file additional information which has been taken into consideration.

2. The erstwhile Uttar Pradesh State Electricity Board (UPSEB) (the predecessor of the respondent herein) constructed Tanda Thermal Power Station with a total installed capacity of 440 MW. The first unit was commissioned in 1987-88 and the last unit in the year 1997-98. The generating station was transferred to the petitioner on 14.1.2000 under the Uttar Pradesh Electricity Reforms (Transfer of Tanda Undertaking) Scheme, 2000 for a total consideration of Rs.1000 crore. The power generated from the generating station is supplied exclusively to the respondent based on the Power Purchase Agreement dated 7.1.2000, entered into by the petitioner and UPSEB, valid for a period of 25 years from 14.1.2000 i.e. the date of vesting of the generating station in NTPC.

3. The tariff for the generating station for the period up to 31.3.2004 was approved by the Commission vide its order dated 28.6.2002 in Petition No. 77/2001. The Commission further revised the fixed charges vide order dated 9.4.2003 in Review Petition No.2/2003. The Commission vide order dated 24.10.2005 in Petition 8/2005 approved the revised fixed charges of the generating station after allowing additional capital expenditure on R&M of Rs.17747 lakh for the period 14.1.2000 to 31.3.2004.

4. The details of the annual fixed charges claimed by the petitioner as per IA 53/2005 are given hereunder:

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan	3784	3083	2379	1653	894
Interest on Working Capital	1664	1666	1669	1683	1682
Depreciation	2904	2904	2904	2904	2904
Advance against Depreciation	2185	2185	2185	2590	2590
Return on Equity	3296	3296	3296	3296	3296
O&M expenses	7684	7991	8311	8643	8989
TOTAL	21515	21124	20743	20768	20355

5. The details of interest on working capital furnished by the petitioner and its claim for interest thereon are summarised hereunder :

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Coal Stock	5277	5277	5277	5291	5277
Oil Stock	216	216	216	216	216
O & M expenses	640	666	693	720	749
Spares	1019	1081	1145	1214	1287
Receivables	9079	9014	8950	8969	8885
Total Working Capital	16231	16253	16281	16411	16414
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working capital	1664	1666	1669	1682	1682

6. In addition, the petitioner has claimed energy charge of 143.25 paise/kWh from April 2004 to June 2004 and 160.12 paise/kWh from July 2004 onwards based on escalation in coal price effective from 15.6.2004.

7. The respondent has filed its reply to the petition. The petitioner has published notices in the newspapers in accordance with the procedure specified by the Commission. However, no objections or suggestions have been received in response to these notices.

CAPITAL COST

8. As per the second proviso to Regulation 17 of the 2004 regulations, in case of the existing generating stations, the capital cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff for 2004-09.

9. The petitioner has claimed tariff based on the capital cost of Rs 78474 lakh, including the additional capital expenditure of Rs.17774 lakh for the period up to 31.3.2004.

10. The Commission vide its order dated 24.10.2005 in Petition No.8/2005 has approved the additional capitalisation of Rs 17747 lakh as against Rs 17774 lakh claimed by the petitioner and decided that the opening capital cost for the purpose of tariff for the period 2004-09, as on 1.4.2004 shall be Rs.78447 lakh.

11. The petitioner, vide affidavit filed on 24.11.2005 has confirmed that all the assets included in the balance sheet for 2003-04 of the generating station were in use as on 1.4.2004. The petitioner has further submitted that the assets that will be out of use in the tariff period 2004-09 will be de-capitalised and the details of such assets not in use/amounts decapitalised shall be furnished to the Commission along with the claims for capitalisation to be filed separately. Therefore, capital cost of Rs 78447 lakh has been adopted for the purpose of tariff in this petition.

DEBT-EQUITY RATIO

12. Clause (1) of Regulation 20 of the 2004 regulations *inter alia* provides that in the case of existing generating stations, 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.

13. The Commission, while approving tariff vide its order dated 28.6.2002, in Petition No 77/2001, for the period from 14.1.2000 to 31.3.2004, had considered the normative debt-equity ratio of 70:30. Therefore, for the purpose of present petition, debt-equity ratio of 70:30 has been adopted. Accordingly, an amount of Rs.23534 lakh has been considered as equity as on 1.4.2004.

TARGET AVAILABILITY

14. The petitioner has considered target availability of 60%, based on the provisions of the 2004 regulations. Accordingly, target availability of 60% has been considered for recovery of full fixed charges and computation of fuel element in the working capital for the period from 1.4.2004 to 31.3.2009.

RETURN ON EQUITY

15. As per clause (iii) of regulation 21 of the 2004 regulations, return on equity shall be computed on the equity base determined in accordance with regulation 20 @ 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.

16. The petitioner has claimed return on equity @ 14%. The return on equity has been worked out on equity of Rs.23534 lakh. The petitioner shall recover an amount of Rs.3295 lakh each year, during the period 2004-09, as return on equity.

INTEREST ON LOAN

17. Clause (i) of regulation 21 of the 2004 regulations, as amended, *inter alia* provides that,-

- (a) Interest on loan capital shall be computed loan-wise on the loans arrived at in the manner indicated in regulation 20.

- (b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per regulation 20 minus cumulative repayment as admitted by the Commission, or any other authority having power to do so, up to 31.3.2004. The repayment for the period 2004-09 shall be worked out accordingly on normative basis.
- (c) The generating company shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such refinancing shall be borne by the beneficiaries.
- (d) The changes to the loan terms and conditions shall be reflected from the date of such refinancing and benefits passed on to the beneficiaries.
- (e) In case of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the Commission to the generating company during the pendency of the any dispute relating to refinancing of loan.
- (f) In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.
- (g) The Generating Company shall not make any profit on account of refinancing of loan and interest on loan.
- (h) The generating company may, at its discretion, swap loans having floating rate of interest with loans having fixed rate of interest or vice –versa, at its own cost and gains or losses as a result of such swapping shall accrue to the generating company.

Provided that the beneficiaries shall be liable to pay interest for the loans initially contracted, whether on floating or fixed rate of interest.

18. The fixed charges for the period prior to 1.4.2004 were allowed by the Commission on normative loan. Therefore, the interest on loan has been worked out in the manner as mentioned below:

- (a) Normative loan considered as per order dated 24.10.2005, has been considered.
- (b) Cumulative repayment of loan up to 31.3.2004, has been considered as per order dated 24.10.2005.
- (c) In case of moratorium period of loan in respect of Bonds, depreciation proportionate to the loan has been considered as actual repayment of loan.
- (d) Annual repayment of actual loan has been used to calculate normative repayment of loan. Normative repayment has been worked out as per formula below:

$$\text{Normative Repayment} = \frac{\text{Actual Repayment} \times \text{Normative Loan}}{\text{Actual Loan}}$$

- (e) Where the normative repayment of the loan is less than the depreciation for the same year, the repayment has been considered to the extent of depreciation in accordance with the order dated 5.5.2006 in Petition No.162/2004.
- (f) The weighted average rate of interest calculated on actual loan and actual repayment have been applied on normative loan for computation of interest on loan component of tariff. In order dated 28.6.2002, in Petition No. 77/2001, interest @ 14.50% was allowed as being the interest payable for the loan sanctioned by the Government of India for Faridabad Gas Power Station

during March 2001. All Government loans carrying an interest rate of 14% to 17% have been refinanced by the petitioner with the approval of Govt. of India, with Bonds carrying an interest rate of 8.05% to 9.55% with surveillance charge of 0.03%. Loans of Faridabad GPS have been refinanced with loan carrying interest rate of 9.55% with surveillance charge of 0.03% and therefore, the rate of interest of 9.58% has been considered for this generating station also.

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

CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST

(Rs in lakh)

		2004-05	2005-06	2006-07	2007-08	2008-09
1A	PFC- IV loan					
	Gross loan-Opening	3800	3800	3800	3800	3800
	Cum.repayments upto prev.year	190	570	950	1330	1710
	Net loan-Opening	3610	3230	2850	2470	2090
	FERV	0	0	0	0	0
	Addition/Drawl	0	0	0	0	0
	Total	3610	3230	2850	2470	2090
	Repayments	380	380	380	380	380
	Net loan-Closing	3230	2850	2470	2090	1710
	Average Loan	3420	3040	2660	2280	1900
	Rate of Interest	9.50%	9.50%	9.50%	9.50%	9.50%
	Interest on loan	325	289	253	217	181
1B	PFC- IV loan					
	Gross loan-Opening	700	700	700	700	700
	Cum.repayments upto prev.year	35	105	175	245	315
	Net loan-Opening	665	595	525	455	385
	FERV	0	0	0	0	0
	Addition/Drawl	0	0	0	0	0
	Total	665	595	525	455	385
	Repayments	70	70	70	70	70
	Net loan-Closing	595	525	455	385	315
	Average Loan	630	560	490	420	350
	Rate of Interest	9.50%	9.50%	9.50%	9.50%	9.50%
	Interest on loan	60	53	47	40	33
C	PFC- IV loan					
	Gross loan-Opening	1125	1125	1125	1125	1125
	Cum.repayments upto prev.year	56	169	281	394	506
	Net loan-Opening	1069	956	844	731	619
	FERV	0	0	0	0	0

	Addition/Drawl		0	0	0	0	0
	Total		1069	956	844	731	619
	Repayments		113	113	113	113	113
	Net loan-Closing		956	844	731	619	506
	Average Loan		1013	900	788	675	563
	Rate of Interest		9.00%	9.00%	9.00%	9.00%	9.00%
	Interest on loan		91	81	71	61	51
1D	PFC- IV loan						
	Gross loan-Opening		2022	2022	2022	2022	2022
	Cum.repayments upto prev.year		101	303	505	708	910
	Net loan-Opening		1921	1719	1516	1314	1112
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		1921	1719	1516	1314	1112
	Repayments		202	202	202	202	202
	Net loan-Closing		1719	1516	1314	1112	910
	Average Loan		1820	1618	1415	1213	1011
	Rate of Interest		9.00%	9.00%	9.00%	9.00%	9.00%
	Interest on loan		164	146	127	109	91
1	PFC- IV loan						
	Gross loan-Opening		7647	7647	7647	7647	7647
	Cum.repayments upto prev.year		382	1147	1912	2676	3441
	Net loan-Opening		7265	6500	5735	4971	4206
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		7265	6500	5735	4971	4206
	Repayments		765	765	765	765	765
	Net loan-Closing		6500	5735	4971	4206	3441
	Average Loan		6882	6118	5353	4588	3823
	Rate of Interest		9.29%	9.29%	9.29%	9.29%	9.29%
	Interest on loan		640	569	498	426	355
2	Bonds -XVIII						
	Gross loan-Opening		2000	2000	2000	2000	2000
	Cum.repayments upto prev.year		0	71	139	205	269
	Net loan-Opening		2000	1929	1861	1795	1731
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		2000	1929	1861	1795	1731
	Repayments		71	68	66	64	61
	Net loan-Closing		1929	1861	1795	1731	1670
	Average Loan		1965	1895	1828	1763	1701
	Rate of Interest		5.98%	5.98%	5.98%	5.98%	5.98%
	Interest on loan		117	113	109	105	102
3	UCO Bank						
	Gross loan-Opening		2300	2300	2300	2300	2300
	Cum.repayments upto prev.year		0	329	657	986	1314
	Net loan-Opening		2300	1971	1643	1314	986
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		2300	1971	1643	1314	986
	Repayments		329	329	329	329	329
	Net loan-Closing		1971	1643	1314	986	657

	Average Loan		2136	1807	1479	1150	821
	Rate of Interest		7.35%	7.35%	7.35%	7.35%	7.35%
	Interest on loan		157	133	109	85	60
	Total New Loan for ACE						
	Gross loan-Opening		11947	11947	11947	11947	11947
	Cum.repayments upto prev.year		382	1546	2708	3867	5024
	Net loan-Opening		11565	10400	9239	8080	6923
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		11565	10400	9239	8080	6923
	Repayments		1164	1162	1159	1157	1155
	Net loan-Closing		10400	9239	8080	6923	5768
	Average Loan		10983	9820	8659	7501	6345
	Rate of Interest		8.32%	8.30%	8.26%	8.22%	8.15%
	Interest on loan		914	815	715	616	517
4	Notonal loan						
	Gross loan-Opening		42490	42490	42490	42490	42490
	Cum. repayments upto prev.year as per CERC's order dated 28.6.2002 / 9.4.2003 in petition No. 77/2001 & 2/2003		21245	25494	29743	33992	38241
	Net loan-Opening		21245	16996	12747	8498	4249
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		21245	16996	12747	8498	4249
	Repayments		4249	4249	4249	4249	4249
	Net loan-Closing		16996	12747	8498	4249	0
	Average Loan		19121	14872	10623	6374	2125
	Rate of Interest		9.55%	9.55%	9.55%	9.55%	9.55%
	Interest on loan		1826	1420	1014	609	203
	Total loan						
	Gross loan-Opening		54437	54437	54437	54437	54437
	Cum.repayments upto prev.year		21627	27040	32451	37859	43265
	Net loan-Opening		32810	27396	21986	16578	11172
	FERV		0	0	0	0	0
	Addition/Drawl		0	0	0	0	0
	Total		32810	27396	21986	16578	11172
	Repayments		5413	5411	5408	5406	5404
	Net loan-Closing		27396	21986	16578	11172	5768
	Average Loan		30103	24691	19282	13875	8470
	Rate of Interest		9.10%	9.05%	8.97%	8.83%	8.50%
	Interest on loan		2740	2235	1730	1225	720

20. The computation of interest on notional loan by applying weighted average interest rate is appended below:

COMPUTATION OF INTEREST ON LOAN

(Rs. in lakh)

Loan	Upto 1.4.2004	2004-05	2005-06	2006-07	2007-08	2008-09
Gross loan		54913.09	54913.09	54913.09	54913.09	54913.09
Cumulative repayments of loans upto previous year	22356	22356	27727	33096	38463	43827
Net loan-Opening		32557.53	27185.79	21816.95	16450.09	11085.81
Addition due to Additional Capitalisation		0.00	0.00	0.00	0.00	0.00
Repayments of loans during the year		5372	5369	5367	5364	5362
Net loan-Closing		27185.98	21816.76	16450.28	11085.81	5723.76
Average Net Loan		29871.75	24501.27	19133.62	13767.95	8404.78
Rate of Interest on Loan		9.10%	9.04%	8.95%	8.78%	8.42%
Interest on loan		2718	2215	1712	1209	708

DEPRECIATION

21. Sub-clause (a) of clause (ii) of regulation 21 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 2004 regulations. The residual life 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 capitalization 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.

22. Weighted average rate of depreciation calculated, based on gross value of assets is 3.54% against the petitioner's claim of 3.7%. The rate has been calculated based on gross value of assets as furnished by the petitioner at applicable rates as per Appendix-II of the 2004 regulations and applied on pro-rata basis on admitted capital cost. For certain assets which are not listed in Appendix-II, the rates considered are as applicable to similar assets included in Appendix-II. The depreciation recovered in tariff up to 31.3.2004, has been taken as per order dated 24.10.2005 in Petition 8/2005.

23. The cost of land in the present case is Rs.1675 lakh. The gross depreciable value of the generating station, excluding land cost, is $0.9 \times (\text{Rs. } 78447 - \text{Rs. } 1675 \text{ lakh}) = \text{Rs. } 69095 \text{ lakh}$. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004, is Rs.35626 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 33469 lakh. The petitioner is entitled to recover depreciation of Rs.2780 lakh each year, for the period 1.4.2004 to 31.3.2009.

ADVANCE AGAINST DEPRECIATION

24. As per sub-clause (b) of clause (ii) of regulation 21 of the 2004 regulations, in addition to allowable depreciation, the generating company is entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan repayment amount as per regulation 21(i) subject to a ceiling of 1/10th of loan amount as per regulation 20 minus depreciation as per schedule

25. 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.

26. The gross loan and repayment of loan during the period has been considered for computing Advance Against Depreciation. In the instant case, cumulative depreciation already recovered exceeds the repayment of loan. Therefore, the petitioner's entitlement to Advance Against Depreciation is "nil" in accordance with para 25 above.

O&M EXPENSES

27. The 2004 regulations prescribe the following methodology for calculation of O&M expenses for the generating station :

“ The base operation and maintenance expenses including insurance for the year 2001-02 shall be derived by averaging the actual O&M expenses for the years 2000-01 to 2002-03 based on the audited balance sheets and by excluding abnormal O & M expenses, if any after prudence check by the Commission.

The average of such normalized O&M expenses, after prudence check, for the years 2000-01 to 2002-03 considered as O&M expenses for the year 2001-02 shall be escalated at the rate of 4% per annum to arrive at the O&M expenses for the base year 2003-04. The O&M expenses for the base year 2003-04 shall be escalated at the rate of 4% per annum to arrive at the permissible O&M expenses for the relevant year of the tariff period”.

28. The petitioner has claimed O&M expenses as detailed below: :

	(Rs.in lakh /MW)				
Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses	7684	7991	8311	8643	8989

29. The claim of the petitioner is based on the actual O&M expenses for the year 2000-01 to 2002-03 as per the 2004 regulations and are as follows :

(Rs.in lakh)			
Year	2000-01	2001-02	2002-03
O&M expenses including water charges	6046.10	6407.36	8038.47

30. O&M expenses during 2000-01 to 2002-03 under various heads are discussed in the following paragraphs.

Expenditure on Consumption of stores and spares :

31. The petitioner has indicated the following amounts under this head:

(Rs.in lakh)			
Year	2000-01	2001-02	2002-03
Stores and spares consumed	96.28	208.91	121.15

32. There has been an increase in the expenditure to the extent of 117% in the year 2001-02, over the expenditure for the previous year. The petitioner has clarified that three units of the generating station were running in the year 2000-01 and four units in the year 2001-02, resulting in increased consumption of stores and spares and that, with proper maintenance, PLF of the generating station had improved from 30.87% at the time of take over to 54.525% in the year 2001-02.

33. The expenditure on consumption of stores and spares as indicated above for the period 2000-03, is allowed for the reasons stated, to arrive at the normalized average expenditure.

Repair and Maintenance

34. The expenditure on repair and maintenance during 2000-03 is as follows :

(Rs in lakh)			
Year	2000-01	2001-02	2002-03
Repair & Maintenance	2411.27	2746.58	3340.75

35. There is an increase of 14% and 21.6% in the expenditure for the years 2001-02 and 2002-03 respectively, over the previous year's expenditure. According to the petitioner, this increase in expenditure has been necessitated due to planned outage/overhauling of units for 155 days in the year 2001-02 , capital overhaul of unit-3 for 308 days in the year 2002-03, thereby resulting in the total number of planned outages/overhauling for 445 days in the year 2002-03.

36. The expenditure on repair and maintenance as indicated above for the period 2000-03, is allowed for the reasons stated, to arrive at the normalized average expenditure.

Expenditure on Insurance

37. The petitioner has indicated the following amounts under this head:

	(Rs in lakh)		
Year	2000-01	2001-02	2002-03
Insurance	93.78	167.65	150.03

38. The petitioner has submitted that the increase in expenditure in the year 2001-02, is on account of Mega Insurance Policy covering additional perils like earthquake taken with effect from 1.5.2001.

39. Since the adoption of Mega Insurance Policy is in the overall interest of the generating station as well as the beneficiary, this expenditure as indicated above is allowed.

Expenditure on Security

40. The expenditure on security is Rs 315.67 lakh during 2000-01, Rs.300.78 lakh during 2001-02 and Rs.340.62 lakh in 2002-03.

41. As there is no abnormal increase in expenditure on year to year basis, the expenditure under this head as indicated , is allowed.

Administrative expenses

42. The petitioner has indicated the following amounts under this head

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Administrative expenses	784.98	378.47	359.25

43. There has been no abnormal increase in expenditure on year to year basis. However the petitioner has indicated the following expenses under the sub-head "others".

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Others	432.91	378.47	359.25

44. The expenditure under this sub-head is more than 50% of the Administrative expenses in different years. The petitioner has submitted further details of expenses under this head as follows :

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Fixed written off /(due to decapitalisation)	185.89	29.28	(-) 9.18

45. The petitioner has booked the losses as a part of O&M expenditure. These losses relate to unrealized depreciation of assets which has been decapitalised during the years under consideration. In our opinion, the petitioner has to bear the loss/profit arising out of its investment decision to take over the generating station. The Commission has already allowed the additional capital expenditure arising out of replacement of such assets with corresponding reduction of depreciation recovered for the decapitalised assets from the cumulative depreciation of the generating station. Hence, recovery of unrealized depreciation as a part of O&M is not allowed. Further, the amount claimed under the sub-head "Loss on disposal of Fixed assets" amounting

to Rs.5.16 lakh is also disallowed, since the profit /loss on disposal of fixed assets is not a pass through in the tariff.

46. After reducing the disallowed expenditure on the above two counts, the following expenditure is allowed, to arrive at the normalized average expenditure

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Administrative expenses	599.04	675.08	696.67

Employee Cost

47. The petitioner has indicated the following amounts under this head

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Salaries, wages and allowances	1536.59	1277.20	2148.76
Staff welfare expenses	153.01	179.15	213.31
Productivity linked incentive	66.72	205.90	209.87
Total	1756.32	1662.25	2571.94

48. There has been an increase in expenditure to the extent of 55% in the year 2002-03, over the expenses for the previous year. The petitioner has clarified that the said expenditure is on account of an amount of Rs.550.34 lakh towards pensionary benefits and Rs.50 lakh towards arrears of salary of erstwhile UPSEB employees.

49. The Commission by its order dated 13.12.2005, directed the petitioner to clarify whether there existed any obligation to incur such expenditure towards erstwhile UPSEB employees in the period 2004-09. The petitioner by affidavit dated 5.1.2006, has clarified as follows :

“ It is submitted that the liability on account of arrears of salaries payable to employees of erstwhile UPSEB cannot be determined in Financial terms at this stage as negotiations with the worker’s unions for amalgamation to the petitioners’ pay scales and terms and conditions are still in progress”.

“At present pension is being paid to all the retired employees as per rules of erstwhile UPSEB and provision is made each year for all the employees (in service as well as retired) through actuarial valuation. Provisions/payments made during 2004-05 was Rs.2.78 crores and total provision made by the petitioner as on 31.3.2005 was Rs.27.09 crores, out of which a claim of Rs.

1329.55 lakh, for pension provision during the period of UPSEB, has been recovered from UPSEB and transferred to NTPC Tanda employees pension trust. Provision in future years will also be made on actuarial valuation at the end of each financial year”

50. As expenditure towards arrears of salary form part of salary, the same is allowed. As regards pension liabilities towards erstwhile UPSEB employees, it is observed that actuarial valuation for the period starting from the date of takeover i.e from 14.1.2000 to 31.3.2005, works out to Rs 1379 lakh, over a span of five years @ Rs. 275 lakh annually. The provision made by the petitioner for Rs. 550 lakh in three years on this count is in order. Hence, the expenditure on salaries, wages and allowances for the period 2000-03, as claimed is allowed.

51. The expenditure claimed in respect of “Staff welfare expenses”, is allowed as the said expenditure is for the benefit of the employees.

52. As regards the petitioner’s claim towards incentive, only the statutory bonus payable under the Payment of Bonus Act, is allowed. Accordingly, the following amount is considered for the purpose of normalisation of O&M expenses.:

(Rs in lakh)			
Year	2000-01	2001-02	2002-03
Salaries, wages and allowances	1536.59	1277.20	2148.76
Staff welfare expenses	153.01	179.15	213.31
Productivity linked incentive	0	0	0
Total	1689.60	1456.35	2362.07

Corporate Office Expenses

53. The petitioner has indicated the following amounts under the head corporate expenses (total) and corporate expenses allocated to the generating station.

(Rs in lakh)			
Year	2000-01	2001-02	2002-03
Corporate expenses	28520.55	35182.72	35033.81
Corporate expenses allocated to the generating station	587.80	616.83	821.38

54. The petitioner has stated in the petition that the expenses common to operational and construction activities are allocated to revenue account and incidental expenditure during construction in proportion of sales to annual capacity outlay and among various generating stations in proportion to sales of individual generating stations.

55. It is noticed that there has been an increase of 5% and 33.16% in the corporate expenses in the year 2001-02 and 2002-03 respectively from the previous year. In response to the direction of the Commission, the petitioner by its affidavit dated 5.1.2006, has clarified as follows :

“ The share of sales of the generating station in total NTPC sale was 2.03% in 2001-02 and during 2002-03, the sales increased and Tanda’s share in total NTPC sale went up to 2.88%. This has resulted in increase in corporate expenses (revenue) share of the generating station by Rs 2.05 cr from 6.16 cr in 2001-02 to Rs 8.21 cr in 2002-03”

56. In view of the clarification, the expenses under this head is allowed, after reduction of the productivity linked incentives and donations.

57. Accordingly, after reducing the expenditure on productivity linked incentive and donations, the year-wise corporate office expenditure allocation, for the purpose of computation of average O&M expenditure is as follows :

	(Rs in lakh)		
Year	2000-01	2001-02	2002-03
Corporate expenses excluding incentive and donations allocated to generating station on proportionate basis	571.49	560.09	777.64

Miscellaneous Income

58. It is observed from the balance sheets for the period 2000-03, that the generating station had the following income under the head "Miscellaneous Income". This income has been reduced from O&M expenditure during 2000-03, to arrive at the average normalized O&M expenses.

(Rs in lakh)

Year	2000-01	2001-02	2002-03
Miscellaneous Income	15.22	29.83	39.92

59. Based on the discussions in the preceding paragraphs, the following expenses under various heads of O&M expenditure for the year 2000-03, are allowed for the purpose of computation of average O&M expenditure.

(Rs in lakh)

Head/ Year	2000-01	2001-02	2002-03
Stores and spares consumed	96.28	208.91	121.15
Repair & maintenance	2411.27	2746.58	3340.75
Insurance	93.78	167.65	150.03
Security	315.67	300.78	340.62
Administrative expenses	599.04	675.08	696.67
Employee cost			
Salaries, wages and allowance	1536.59	1277.20	2148.76
Staff welfare expenses	153.01	179.15	213.31
Productivity linked Incentive	0	0	0
Sub-Total employee cost	1689.60	1456.35	2362.07
Corporate expenses allocated to generating station	571.49	560.09	777.64
Grand Total	5777.13	6115.44	7788.93
Less Misc. Income	15.22	29.83	39.92
Total after reducing Misc. Income	5761.91	6085.61	7749.01

60. The average of the expenditure which has qualified for the years 2000-2003 works out to Rs 6560.50 lakh and this is considered as normalized O&M expenses for the year 2001-02. As per the 2004 regulations, the permissible O&M expenses for the different years during the tariff period 2004-09 work out as follows :

(Rs in lakh)

2004-05	2005-06	2006-07	2007-08	2008-09
7348	7642	7947	8265	8596

61. In addition to the above, the petitioner has prayed for a specific deviation pertaining to water charges in O&M. The petitioner has submitted that in the past years, the State Governments have been resorting to manifold increase in the rates of water charges / royalty payable, which is not normally based on common commercial principles. Therefore, this increase cannot be covered under the normal O&M expenses allowed in the tariff. The petitioner has, therefore, submitted that any increase in the rates of water charges / royalty etc. by more than 4% per annum over the rates prevailing on 31.3.2004 should be additionally payable by the respondent beneficiaries.

62. The normative O&M expenses finalized by the Commission after going through the transparent process of hearing and consulting all concerned and based on the data furnished by the concerned utilities for different components of O&M, including water charges, provides for an escalation of 4% per year. There may be other heads in O&M expenses where actual expenses may be less than the normative expenses specified by the Commission. Therefore, we do not consider it to be justified to allow increase under one head, that is, water charges in isolation. As such, recovery of additional O&M expenses on account of any increase in the rates of water charges / royalty etc. during tariff period cannot be allowed. However, if State Governments resort to abnormal increase in the rates of water charges / royalty during the tariff period, the petitioner is at liberty to approach the Commission in accordance with law for recovery of additional water charges with proper justification and details of actual expenses recovered under other heads.

63. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007 and therefore, O &M expenses should be subject to revision on account of revision of employee cost from that date. On this count also, the petitioner may approach at an appropriate stage in accordance with law.

INTEREST ON WORKING CAPITAL

64. In accordance with clause (v) of Regulation 21 of the 2004 regulations, working capital in case of Coal based/Lignite-fired generating stations shall cover:

- (i) Cost of coal or lignite for 1½ months for pit-head generating stations and two months for non-pit-head generating stations, corresponding to the target availability;
- (ii) Cost of secondary fuel oil for two months corresponding to the target availability;
- (iii) Operation and Maintenance expenses for one month;
- (iv) Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation; and
- (v) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the target availability.

65. Under the 2004 regulations, the rate of interest on working capital shall be on a 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 generating station or a unit thereof is declared under commercial operation, whichever is later. Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

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

(a) **Coal stock:** The petitioner has revised its claim for interest on working capital from July, 2004 onwards urging that the price of coal has increased w.e.f 15.6.2004. As per provisions of the 2004 regulations, interest on working capital has to be frozen as normative number at the beginning of the tariff period based on the price and GCV of the fuel applicable during preceding three months and prevailing applicable rate of interest and is not to be revised based on subsequent revision of the price of fuel or applicable rate of interest. As such, the plea of the petitioner to allow interest on working capital based on escalated fuel price w.e.f 15.6.2004 has not been accepted. The coal stock has been worked out for one and half months on the basis of weighted average price of Rs 1466.89/MT and GCV of 3570 kcal/kg for coal procured during January to March 2004 as mentioned in main petition.

(b) **Secondary Fuel Oil:.** The petitioner has claimed cost of fuel in the working capital based on price and GCV of secondary fuel oils (LDO & HFO) procured and burnt during September 2003.. Since HFO is the main secondary fuel oil, it is considered for the computation of working capital and base rate of energy charge.

Based on weighted average GCV(3570 kCal/Kg for coal and 9600 kCal/l for HFO only) and price of fuels (coal at Rs.1466.89 /MT and HFO at Rs.16003 /KL) the fuel component in working capital corresponding to target availability of 60% works out as follows :

(Rs in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08 (leap year)	2008-09
Cost of coal for two months	4696.48	4696.48	4696.48	4709.35	4696.48
Cost of secondary fuel oil for two months.	182.79	182.79	182.79	183.30	182.79

Energy charges for two months	4879.27	4879.27	4879.27	4892.64	4879.27
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(c) O&M Expenses: O&M expenses for working capital has been worked out for 1 month of O&M expenses approved above and are considered in tariff of the respective year.

(d) Spares: The petitioner has calculated the value of maintenance spares for the purpose of working capital considering additional capital expenditure in respective year after the date of commercial operation. Starting with the 1% of historical cost as on date of commercial operation, the cost of maintenance spares for a particular year has been calculated by the petitioner, by escalating the previous year's cost by 6% plus 1% of the additional capital expenditure for that particular year. The amounts claimed by the petitioner for maintenance spares for interest on working capital calculation, are as given below :

(Rs.in lakh)					
Year	2004-05	2005-06	2006-07	2007-08	2008-09
Amount claimed	1020	1081	1146	1215	1288

The 2004 regulations do not provide for taking into account additional capital expenditure for working out the cost of maintenance spares for the working capital. The cost of maintenance spares for the working capital has, therefore, been computed based on historical cost of Rs.60700 lakh, as on date of commercial operation of the station and the additional capitalisation incurred during the period from the date of commercial operation of the generating station to the relevant period has not been considered for computation of maintenance spares. The value of the maintenance spares for 2004-05 works out to Rs.744 lakh.

(e) **Receivables:** The receivables have been worked out on the basis of two months of fixed and variable charges, calculated on Target Availability. The supporting calculations in respect of receivables are tabulated hereunder:

(Rs.in lakh)

Variable Charges	2004-05	2005-06	2006-07	2007-08	2008-09
Coal (Rs/kwh)	1.3691	1.3691	1.3691	1.3691	1.3691
Oil (Rs/kwh)	0.0533	0.0533	0.0533	0.0533	0.0533
Rs./kwh	1.4224	1.4224	1.4224	1.4224	1.4224
Variable Charges per year	29276	29276	29276	29356	29276
Receivables					
Variable Charges -2 months	4879	4879	4879	4879	4879
Fixed Charges - 2 months	2930	2896	2864	2834	2806
Receivables (Rs in lakh)	7809	7775	7743	7727	7685

67. The average SBI PLR of 10.25% as on 1.4.2004 has been considered as the rate of interest on working capital during the tariff period 2004-05 to 2008-09.

68. The necessary details in support of calculation of interest on working capital are appended below:

Calculation of Interest on Working Capital

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Coal Stock- 2 months	4696	4696	4696	4709	4696
Oil stock -2 months	183	183	183	183	183
O & M expenses	612	637	662	689	716
Spares	744	789	836	887	940
Receivables	7809	7775	7743	7727	7685
Total Working Capital	14045	14080	14121	14195	14221
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Total Interest on Working capital	1440	1443	1447	1455	1458

ANNUAL FIXED CHARGES

69. A statement showing summary of the capital cost and other related matters is annexed to this order. The annual fixed charges for the period 1.4.2004 to 31.3.2009 allowed in this order are summed up as below:

(Rs. in lakh)

	Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
1	Interest on Loan	2718	2215	1712	1209	708

2	Interest on Working Capital	1440	1443	1447	1455	1458
3	Depreciation	2780	2780	2780	2780	2780
4	Advance against Depreciation	0	0	0	0	0
5	Return on Equity	3295	3295	3295	3295	3295
6	O & M Expenses	7348	7642	7947	8265	8596
	TOTAL	17580	17374	17181	17004	16836

OPERATING PARAMETERS

70. The petitioner has considered the following weighted average operational norms for the computation of fuel component in working capital and base rate of energy charges.

Sp.Oil Consumption	MI/kWh	3.5
Auxillary consumption	%	11
Heat Rate	Kcal/kWh	3000

71. The operational norms considered by the petitioner are as per the 2004 regulations. However, the respondent vide petition No. 26/2006 has prayed for revision of above operational parameters and norms claiming improvement in the performance in view of the substantial additional capital expenditure on R&M of the generating station approved by the Commission in Petition No 8/2005. Hence, determination of tariff as per operational norms in the instant petition is subject to revision, if any, based on the outcome of Petition No.26/2006.

ENERGY/VARIABLE CHARGES

72. The petitioner has claimed the rate of energy charge at 143.25 paise/kWh based on fuel prices for the preceding three months of January to March 2004. The energy charge has been revised by the petitioner from 143.25 paise/kWh to 160.12 paise/kWh based on the prices & GCV of coal for the month of July 2004 to September 2004, due to increase in prices of coal with effect from 15.6.2004. As "Fuel price Adjustment " clause in the 2004 regulations takes care of the revision of energy charges on subsequent revision of coal price on month to month basis the

base rate of energy charge need not be reworked on the basis of increased coal prices w.e.f.15.6.2004. Further, we allow HFO as secondary fuel oil which is the main secondary fuel, for the purpose of base rate of energy charges. The base rate of energy charge works out to 142.24 paise/kWh as per the following computations based on fuel prices and GCVs

Gross Station Heat Rate	kCal/kWh	3000.00
Specific Fuel Oil Consumption	ml/kWh	3.50
Aux. Energy Consumption	%	11.00
Weighted Average GCV of Oil	kCal/l	9880.00
Weighted Average GCV of Coal	kCal/Kg	3570.00
Weighted Average Price of Oil	Rs./KL	13550.00
Weighted Average Price of Coal	Rs./MT	1466.89
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	4.74
Heat Contributed from SFO	kCal/kWh	34.58
Heat Contributed from Coal	kCal/kWh	2965.42
Specific Coal Consumption	Kg/kWh	0.83
Rate of Energy Charge from Coal	Paise/kWh	121.85
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	142.24

73. 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 26.3.2004 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,

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

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

Where,

- SFC_n – Normative Specific Fuel Oil consumption in l/kWh
- SHR_n – Normative Gross Station Heat Rate in kCal/kWh
- AC_n – Normative Auxiliary Consumption in percentage
- P_{om} – Weighted Average price of fuel oil on as consumed basis during 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 procured and burnt during 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 for determination of base energy charge in tariff order in kCal/Kg

74. The petitioner vide its affidavit dated 8.3.2006 has submitted that the expenditure amounting to Rs.59946/- has been incurred towards publication of notices in the newspapers and has sought approval for reimbursement of this expenditure. The petitioner shall claim reimbursement of the said expenditure directly from the respondent in one installment. The petitioner has also sought reimbursement of filing fee of Rs.25 lakh paid. A final view on reimbursement of filing fee is yet to be taken by the Commission for which views of the stakeholder have been called for. The view

taken on consideration of the comments received shall apply in the present case as regards reimbursement of filing fee.

75. 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, and other charges in accordance with the 2004 regulations, as applicable.

76. The petitioner is already billing the respondent 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.

77. This order disposes of Petition No.163/2004.

Sd/-
(A.H. JUNG)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRPERSON

New Delhi, dated the 30th November, 2006

Summary Sheet							
COMPANY				NTPC Ltd.			
POWER STATION				TANDA TPS (440 MW)			
PETITION NO.				163/2004			
Tariff Setting Period				2004-09			
(Rs.in lacs)							
1	Capital Cost of the Project as on 31.3.2001					64945	
	Cumulative depreciation recovered as on 31.3.2001					23355	
2	Admitted capital cost as on 1.4.2004					78447	
3	Additional Capitalisation(works)					13502	
		2001-02			4690		
		2002-03			6134		
		2003-04			2679		
		Total			13502		
4	Additional Capitalisation(FERV)					0	
		2001-02			0.00		
		2002-03			0.00		
		2003-04			0.00		
		Total			0.00		
5	Total Capital Cost as on 1.4.2004(1+2+3)					78447	
6	Means of Finance¹ :						
		Debt		70.00%	54913		
		Equity		30.00%	23534		
		Total		100.00%	78447		
7	Debt details-Notional debt (net) as on 1.4.2004					32759	
		Normative Debt (Gross ie. 70% of 78447)				54913	
		Repayment upto 31.3.2004				22154	
		Balance Debt				32759	
8	Weighted Av.Rate of Interest -Calculated						
		2004-05	2005-06	2006-07	2007-08	2008-09	
		9.10%	9.04%	8.95%	8.78%	8.42%	
90	Depreciation recovered upto 31.3.2009 :					49525	
				Dep	AAD	Total	

	Recovered upto 31.3.2004	23355	0.00	23355	
	From 1.4.2001 to 31.3.2004 (ACE & FERV)	7815	4455	12270	
	From 1.4.2004 to 31.3.2009	13900	0	13900	
	ERV impact from 2001-04	0.00	0.00	0.00	
	Less Dep. earned due to decap of assets.				
	Total			49525	
10	Balance Depreciation to be recovered beyond 31.3.2009 :				19570
	Capital cost for the purpose of Depreciation			64945	
	ACE + FERV			13502	
	Capital cost as 1.4.2004			78447	
	Less: Land Cost			1675	
				76773	
	90% of Capital Cost as above			69095	
	Cum. Depreciation to be recovered upto 31.3.2009			49525	
	Balance Depreciation to be recovered beyond 31.3.2009			19570	