

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

- 1. Shri Ashok Basu, Chairperson**
- 2. Shri Bhanu Bhushan, Member**

Petition No. 91/2004

In the matter of

**Approval of tariff in respect of Talcher TPS (460 MW) for the period
from 1.4.2004 to 31.3.2009.**

And in the matter of

National Thermal Power Corporation Ltd. Petitioner

Vs

Grid Corporation of Orissa Ltd. Respondent

The following were present

1. Shri V.B.K. Jain, NTPC
2. Shri I.J. Kapoor, NTPC
3. Shri R.B. Sharma, NTPC
4. Shri A.S. Pandey, NTPC
5. Shri D. Kar, NTPC
6. Shri R.K. Mehta, Advocate, GRIDCO
7. Shri S.K. Sahoo, GRIDCO
8. Shri S.K. Choudhary, GRIDCO

**ORDER
(DATE OF HEARING: 14.11.2006)**

This petition has been filed by the petitioner, a generating company owned and controlled by the Central Government for approval of tariff in respect of Talcher Thermal Power Station (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”)

2. The generating station (which comprises four units of 60 MW capacity each and two units with capacity of 110 MW each) was transferred to the petitioner on 3.6.1995 in terms of the Talcher Thermal Power Station (Acquisition and Transfer), Act, 1994.

3. The tariff for the generating station for the period ending to 31.3.2004 was approved by the Commission vide its order dated 19.6.2002 in Petition No. 62/2000 which was partially modified vide Commission's order dated 5.11.2003. Subsequently, vide order dated 25.9.2006 in Petition No 35/2004, the Commission approved the additional capital expenditure of Rs.26418 lakh on works for the period 1.4.2000 to 31.3.2004 and arrived at the capital base of Rs.69601 lakh as on 31.3.2004, for the purpose of determination of tariff from 1.4.2004.

4. The petitioner had filed the tariff petition during the pendency of Petition No.35/2004 for additional capitalization and had considered a gross block of Rs.70238 lakh which included the admitted capital cost of Rs.43183 lakh as on 1.4.2000 and the projected additional capitalization of Rs.27055 lakh. The petitioner filed IA No.48/2005 to amend its claim for the revised fixed charges stated to be on account of steep rise in the price of coal with effect from July 2004 resulting in higher working capital requirement. The petition has been allowed to be amended and all references to the petitioner's claim are as per the amended petition.

5. The details of the revised fixed charges claimed by the petitioner are given hereunder:

(Rs. in lakh)					
Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on Loan	1454	1226	1052	884	705
Depreciation	3505	3505	3505	3505	3505
Advance against Depreciation	0	0	0	0	0
Return on Equity	4917	4917	4917	4917	4917
Interest on Working Capital	1068	1080	1094	1110	1124
O & M Expenses	9306	9678	10066	10468	10887
TOTAL	20250	20406	20634	20884	21138

5. The details of 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	1957	1957	1957	1962	1957
Oil stock	340	340	340	340	340
O & M expenses	776	807	839	872	907
Spares	1023	1084	1149	1218	1291
Receivables	6324	6350	6388	6438	6472
Total Working Capital	10419	10538	10673	10832	10967
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working capital	1068	1080	1094	1110	1124

6. In addition, the petitioner has claimed energy charge @ 65.78 paise/kWh (amended petition). The energy charge claimed is subject to adjustment for fuel price.

7. The reply to the petition was filed by the respondent. The petitioner has published notices 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 generating stations existing up to 31.3.2004, the capital cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

9. The petitioner has considered the capital expenditure of Rs.70238 lakh after accounting for additional capitalization of Rs.27055 lakh claimed for the period 2000-04 over the capital expenditure of Rs.43183 lakh as admitted by the Commission in the order dated 19.6.2002 *ibid*. The year-wise details of additional capitalization on works claimed are given below:

(Rs. in lakh)					
Year	2000-01	2001-02	2002-03	2003-04	Total
ACE	9208	1042	6205	10600	27055

10. As per the provisions of Regulation 1.10 of the 2001 regulations, tariff revisions during the tariff period on account of capital expenditure within the approved project cost incurred during the tariff period may be entertained only if such expenditure exceeds 20% of the approved cost. As the additional capital expenditure in respect of the generating station during 2001-04 exceeded 20% of the project cost, the revised fixed charges were allowed after admitting the following additional capital expenditure vide order dated 25.9.2006 in Petition No. 35/2004:

(Rs. in lakh)					
Year	2000-01	2001-02	2002-03	2003-04	Total
ACE	9195	1004	6008	10211	26418

Renovation and Modernization Policy

11. The Commission in its order dated 28.7.2006 in Petition No.35/2004 had observed as under:

“6. The policy on Renovation and Modernization (R & M) is yet to be finalized. The Regulations of 2001-2004 as well as 2004-2009 are silent on the treatment of depreciation once the project has under gone life extension. We are of the view that the issue of reduction of capital cost by accumulated depreciation as claimed by GRIDCO needs to be discussed with all the stakeholders. Once Commission takes a view on the matter, same will be applicable to this generating station as well.

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24. The policy on R & M is yet to be stipulated .The tariff regulations applicable during 2001-04 as well as 2004-09 are silent on the treatment of depreciation once the project has undergone life extension. In the present case, it has been decided that the issue of reduction of capital cost by accumulated depreciation as claimed by the respondent needs to be discussed with all the stakeholders. Once the Commission takes a view on the matter, same will be applicable to this generating station as well, in accordance with law.

25. Based on the above we hold that tariff shall be computed based on the capital cost worked out in para 21 above.”

12. Accordingly, the opening capital cost for the purpose of tariff for the period 2004-09 as on 1.4.2004 shall be Rs.69601 lakh which includes the capital cost of Rs.43183 lakh as on 31.3.2000 adopted by the Commission in its order dated 19.6.2002 in Petition No. 62/2000 for the purpose of tariff fixation for 2000-04 and the additional capitalization on works for the period 2000-04 approved by the order dated 25.9.2006 in Petition No. 35/2004.

13. The petitioner, vide affidavit filed on 15.12.2004 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 de-capitalized shall be furnished to the Commission along with the claims of capitalisation to be filed separately.

FERV/EXTRA RUPEE LIABILITY

14. The petitioner has not claimed FERV for the purpose of capitalization during the period 2000-04 as no foreign loans were drawn for the project.

15. Based on the above, the gross block as on 1.4.2004 comes to Rs.69601 lakh as per details given hereunder:

(Rs. in lakh)	
Capital cost admitted as on 31.3.2000	43183
Additional Capitalization as approved for the years 2000-2004	26418
FERV admitted for the tariff period 2001-2004	0
Opening Capital cost as on 1.4.2004	69601

DEBT-EQUITY RATIO

16. Clause (1) of Regulation 20 of the 2004 regulations inter alia provides that in case of the 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.

17. The Commission, while approving tariff vide its order dated 19.6.2002 in Petition No. 62/2000 for the period from 1.4.2000 to 31.3.2004, had considered the normative debt-equity ratio of 50:50. Therefore, for the purpose of present petition, debt-equity ratio of 50:50 has been adopted and the additional capital expenditure on works is deemed to have been financed in the debt-equity ratio of 50:50. Accordingly, an amount of Rs.34801 lakh has been considered as equity as on 1.4.2004.

TARGET AVAILABILITY

18. The petitioner has considered target availability of 75%, based on the provisions of the 2004 regulations. Accordingly, target availability of 75% 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

19. 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.

20. The petitioner has claimed Rs.4917 lakh as return on equity on the basis of notional equity of Rs.35119 lakh after accounting for equity on account of additional capitalization on works for the period 1.4.2000 to 31.3.2004. The claim has been limited to equity of Rs.34801 as stated in para 17 above and return on equity @ 14% has been worked out on the normative equity. The petitioner shall be entitled to return on equity of Rs.4872 lakh each year during the tariff period on equity of Rs.34801 lakh.

INTEREST ON LOAN

21. Clause (i) of regulation 21 of the 2004 regulations 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 for the period 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 swap the loan as long as it results in net benefit to the long-term transmission customers. The costs associated with such swapping shall be borne by the long-term transmission customers.
- (d) The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefits passed on to the beneficiaries.
- (e) 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.

22. 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 as under in accordance with the methodology specified by the Commission:

- (a) The gross opening normative loan amount has been taken as per the Commission' orders dated 19.6.2002 and 5.11.2003 in Petition No.

62/2000, to which notional loan arising out of additional capitalization for the period 2000-04 has been added.

(b) The cumulative repayment of loan up to 31.3.2004 has also been taken as per Commission's order dated 25.9.2006 in Petition No. 35/2004.

(c) The annual repayment amount for the years 2004-05 to 2008-09 has been worked out as follows:

Actual repayment during the year x normative net loan at the beginning of the year/ actual net loan at the beginning of the year,

(d) Where the normative re-payment in a year is less than the depreciation for the same year, the re-payment has been considered to the extent of depreciation.

(e) The weighted average rate of interest has been worked taking into account the rate of interest on actual loans taken for this project and the same has been applied on the normative average loan during the year to arrive at the interest on loan.

(f) The petitioner has considered FIFO method of repayment in case of certain loans, namely PFC-I, PFC-II, UCO Bank and State Bank of Saurashtra. Since application of FIFO method may result into higher AAD in case of existing power stations and higher IDC in case of ongoing projects, all calculations of actual repayment have been done on average basis, as decided by the Commission, in other cases pertaining to tariff period 2004-09, taking into consideration the terms and conditions of the loan drawal as furnished by the petitioner in Form 8.

(g) The petitioner has considered rate of interest on quarterly/half yearly rest while calculating weighted average interest on actual loan.

However in other cases, rate of interest considered in calculation for all loans is on annual rest basis.

(h) The loan draws up to 31.3.2004 only have been considered.

23. The necessary calculations in support of weighted average rate of interest are appended as Annexure I to this order. The computation of interest on loan by applying the weighted average interest rate are given as under:

	(Rs. in lakh)				
	2004-05	2005-06	2006-07	2007-08	2009-04
Gross loan-Opening	34801	34801	34801	34801	34801
Cumulative repayments of Loans up to previous year	21589	23825	26061	28297	30533
Net loan-Opening	13211	10975	8740	6504	4268
Increase/ Decrease due to FERV	0	0	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0	0	0
Total	13211	10975	8740	6504	4268
Repayments of Loans during the year	2236	2236	2236	2236	2236
Net loan-Closing	10975	8740	6504	4268	2032
Average Net Loan	12093	9857	7622	5386	3150
Rate of Interest on Loan	8.6282%	8.6626%	8.7001%	8.7518%	8.8275%
Interest on loan	1043	854	663	471	278

DEPRECIATION

24. 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 these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing

90% of the historical cost of the asset. The historical capital cost of the asset shall include additional 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.

25. The petitioner has calculated the weighted average depreciation rate of 4.99% by spreading the balance depreciation over balance useful life of the station, which has been calculated as 11 years as on 1.4.2004.

26. The weighted average depreciation rate of 4.5% for the tariff period had been considered for the 2001-04 period by the Commission in its order dated 19.6.2002 in Petition No. 62/2002, taking the extension of plant life by 20 years with effect from 01.04.2001 due to R&M.

27. The gross depreciable value of the generating station is $0.9 \times \text{Rs.}69601$ lakh = Rs.62641 lakh. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs.24631 lakh including depreciation on additional capitalization on works, as admitted by the Commission in its order dated 25.9.2006 in Petition No.35/2004.

28. Accordingly, the total depreciation amount to be recovered between 01.04.2004 and 31.3.2001 works out to Rs.(62641 – 24631) = Rs.38010 lakh. The annual depreciation recovery shall be $38010/17 = \text{Rs.}2236$ lakh, in case the depreciation recovery is evenly spread over the remaining life. This is proposed in the present case, which is special on account of very substantial R&M and life extension, and therefore, merits a slight deviation from the provisions in the 2004 regulations.

ADVANCE AGAINST DEPRECIATION

29. As per sub-clause (b) of clause (ii) of Regulation 56 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 56 (i) subject to a ceiling of 1/10th of loan amount as per regulation 54 minus depreciation as per schedule

30. 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.

31. The petitioner has not claimed Advance Against Depreciation. Accordingly, the petitioner is not entitled to Advance Against Depreciation.

O & M EXPENSES

32. As per the 2004 regulations, O & M expenses in respect of the generating station have to be calculated based on the following methodology:

“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 1998-99 to 2002-03 based on the audited balance sheets and by excluding abnormal O & M expenses, if any, after a prudence check by the Commission.

The average of such normalized O & M expenses, after prudence check, for the 1998-99 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 @ 4% per annum to arrive at the permissible O&M expenses for the relevant year of the tariff period.”

33. The petitioner has claimed the following O&M for the period 2004-09:

(Rs. lakh /MW)					
Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses	9036	9678	10066	10468	10887

34. The petitioner has calculated O&M expenses based on the following actual expenses incurred during 1998-99 to 2002-03.

(Rs.in lakh)					
Years	1998-99	1999-2000	2000-01	2001-02	2002-03
O & M expenses including water charges	6958.81	7662.6	7186.65	8213.64	9752.98

35. Since the annual increase under certain heads exceeded the expenses of the previous year by more than 20%, the petitioner was asked to submit the reasons therefor. The petitioner has submitted the necessary information vide affidavit dated 15.4.2005. The head wise expenditure has been discussed hereunder to arrive at the allowable O & M expenses during the period 1998-99 to 2002-03:

(a) **Consumption of stores and spares:** The petitioner has indicated the following year-wise expenditure under this head:

(Rs. In lakh)

Year	1998-99	1999-2000	2000-01	2001-02	2002-03
	84.50	79.78	88.77	72.35	62.57

Since the increase in expenditure on year-to-year basis is within the permissible limit of 20%, the same has been considered for determining the allowable O & M expenses.

(b) **Repair and Maintenance:** The petitioner has considered the following year-wise expenditure under this head:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
	2499.19	2383.33	2584.77	2729.47	2226.61

The expenditure under this head is within the normal range and has accordingly been considered to arrive at the allowable O & M expenses.

(c) **Insurance:** The petitioner has considered the following year wise expenditure under this head:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
	143.35	87.41	98.60	139.89	192.65

There is abnormal increase to the extent of 42% during the year 2001-02 and 38% during the year 2002-03 as compared to the expenses for the respective preceding year. The petitioner has explained that the increase in expenditure during 2001-02 is on account of the mega insurance policy taken w.e.f. 1.5.2001 for the generating station to provide coverage for the additional contingencies like earthquake. During the year 2002-03, the sum assured was revised. Since the increase in the expenditure is on account of the additional benefits in the policy, the same is allowed to be included in O & M expenses.

- (d) **Security:** The petitioner has considered the following year-wise expenditure under this head:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
	178.18	266.53	345.30	370.60	398.11

There is abnormal increase during the year 1999-2000 and 2001-02 in comparison to the respectful previous year. The petitioner has explained that during 1999-2000, the number of CISF personnel was increased from 154 to 223 after induction of fire wing. The number of personnel were further increased to 300 during the year 2001-02 considering the security requirement of the generating station. In support of its contention, the petitioner has submitted the letters from Ministry of Home Affairs for creation of additional 67 posts for fire wing and 80 posts for upgradation of security wing. Since the increase in the number of security personnel has been done by the petitioner as per the security perception of Ministry of Home Affairs, the same is allowed to arrive at O&M expenditure for 2004-09.

- (e) **Administrative expenses:** The petitioner has considered the following year-wise expenditure under this head:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Water expenses	60.13	60.35	60.19	60.19	108.98
Electricity charges	84.06	74.32	90.97	(-)99.26	72.20
Travelling and conveyance	82.26	110.11	144.54	175.51	185.73
Telephone, telex and postage	29.68	32.08	37.26	40.26	28.73
Advertising	3.33	1.85	4.62	4.78	4.19
Entertainment	0.41	1.94	2.07	2.69	3.40
Others	286.25	292.74	674.95	647.67	954.91
Total	546.12	573.39	1014.6	831.84	1358.14

There is increase of 81% in water charges during the year 2002-03 in comparison to the preceding year. The petitioner, in its letter dated 1.3.2007 has explained that the increase on account of the arrears to the tune of Rs.48.79 lakh for the period 1.1.2002 to 31.3.2003 due to revision of water charges by the State Government from 1999-2000. Regarding expenditure on traveling and conveyance, there is increase of 34% and 31% during 1999-2000 and 2000-01. The petitioner has explained that the increase is on account of revision of conveyance allowance from January, 1999 and also the arrears paid to the employees of OSEB, who were absorbed in NTPC. There is no abnormal increase under any of the other heads such as electricity charges, telephone, telex and postage etc. As regards the head 'others', the petitioner, in its affidavit dated 22.12.2006, has explained that the cost of certain fixed assets de-capitalisation has been included therein. However, as per the policy of the Commission, any loss or profit arising out of assets decapitalized after they have been taken out of service is to be retained by the generating company. Accordingly, an amount of Rs.245.89 lakh, Rs.263.27 lakh and Rs.490.08 lakh have been disallowed in the year 2000-01, 2001-02 and 2002-03. In view of the above discussion, the following expenses have been included under the head administrative expenses for the purpose of working out the allowable O & M expenditure for the period 2004-09:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Water expenses	60.13	60.35	60.19	60.19	108.98
Electricity charges	84.06	74.32	90.97	(-)99.26	72.20
Travelling and conveyance	82.26	110.11	144.54	175.51	185.73
Telephone, telex and postage	29.68	32.08	37.26	40.26	28.73
Advertising	3.33	1.85	4.62	4.78	4.19
Entertainment	0.41	1.94	2.07	2.69	3.40
Others	286.25	292.74	429.06	384.4	464.83

Total	546.12	573.39	768.71	568.57	868.06
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(f) **Employee Cost:** The petitioner has submitted the following as regards the employee cost in terms of the directions of the Appellate Tribunal for Electricity vide its order dated 7.9.2006:

(Rs.in lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Allowable heads					
Salary and welfare expenses	2644	2955	2942	3406.27	5193.25
Non-Allowable heads					
Productivity linked incentive and ex gratia	196	225	241	194	133.2
Total	2840	3180	3183	3600.27	5326.06

On the question of steep increase in the expenditure during the year 2002-03 on account of employee cost, the petitioner has explained that this is on account of the pension liability of the taken over employees as per the actuarial valuation. The petitioner, in its affidavit dated 20.11.2006, has explained that an expenditure of Rs.1790 lakh as per the actuarial valuation report pertaining to the period 1995-2003 has been incurred. The petitioner has further submitted that its yearly liability on account of pension is around Rs.470 lakh based on the actuarial valuation report for the period 2003-04 to 2005-06. Since the expenditure of Rs.1790 lakh is being on account of payment of arrears for the period 1995-2003, it has been deducted from the expenditure of 2002-03 along with yearly provision of Rs.470 lakhs during 2004-2009 for the purpose of arriving at the allowable O&M expenditure for the tariff period 2004-09. The expenses on account of incentive/ex gratia are not being considered,

as per the Commission's decision in other cases. Accordingly, the following expenditure towards employee cost has been considered:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Total of salary and welfare expenses	2644	2955	2942	3406.27	3403.25

(f) **Corporate Office Expenses:** The petitioner has indicated the following year wise expenditure under this head:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Corporate Office expenditure after adjusting income	11834.15	17513.76	25699.99	30144	28484
% allocation	1.85	1.62	1.46	1.56	0.66
Corporate expenses allocated	218.93	284	376.08	469.22	188.45

As per the Commission's policy which has been upheld by the Appellate Tribunal, ex gratia and incentive in corporate office expenditure is not recoverable in tariff. Accordingly, the allowable expenditure under this head works out as follows:

(Rs. In lakh)					
Year	1998-99	1999-2000	2000-01	2001-02	2002-03
Allowable Corporate Office expenses allocated to TTPS*	220	286	321	458	184

*Based on revised employee cost for 1998-2001 submitted by affidavit dated 12.1.2007 in 108/2005

36. 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 had been resorting to manifold increase in the rates of water charges/royalty payable, which is not normally based on common commercial principles. Therefore, these increases 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.

37. The normative O & M expenses were finalized by the Commission after going through the transparent process of hearing and consulting all concerned and were based on the data furnished by the concerned utilities for different components of O&M, including water charges. Further, an escalation of 4% per year is in-built in the normative O & M expenses specified by the Commission. 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, 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, if State Governments resort to abnormal increase in the rates of water charges/royalty during the tariff period.

38. Based on the above discussion, the year-wise O&M expenses for the generating station work out as follows-

(Rs. in lakh)					
Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses	8700	9029	9372	9728	10098

39. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007. Therefore, O &M expenses should be subject to revision on account of revision of employee cost from that date. In the

alternative, it has been prayed that the increase in employee cost due to wage revision be allowed as per actuals for extra cost to be incurred consequent to wage revision. We are not expressing any view, as this issue does not arise for consideration at this stage. The petitioner may approach for a relief in this regard at an appropriate stage in accordance with law.

INTEREST ON WORKING CAPITAL

40. 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 month 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.

41. 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.

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

Coal stock: The petitioner has submitted that coal transportation of the instant station from link mines i.e., Jagannath Mines of Mahanadi Coal Fields Ltd (MCL) was through a single stream cross country conveyor system. This system of coal transportation by conveyor system is very old and has become unreliable over the time. In addition, it has an average capacity of 5800 MT/day which is just sufficient to meet the requirement at about 59% PLF only. Further, due to space constraint, an additional stream could not be added to the existing conveyor system. In order to achieve the target availability stipulated by CERC, additional coal transportation system through railway wagons was commissioned in June 2004 for transporting the coal from the linked mines. Coal is delivered at railway siding from where it is transported to the plant coal yard by bottom discharge wagons. In view of the above, the petitioner has prayed that transit and handling losses of 0.8% may be applied on the portion of coal (around 54 to 64%) which is being transported through the railway system.

The plea of the petitioner is not acceptable as transit and handling losses of 0.8% can only be applied to non-pithead generating stations for which coal is being transported through long distances. However, since coal is

being procured from the nearby linked mines transit/handling losses of 0.3% are being allowed for arriving at the rate of coal.

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 setting based on the price and GCV of the fuel during preceding three months 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 prayer of the petitioner to allow interest on working capital based on escalated fuel price w.e.f 15.6.2004 cannot be accepted. As per the 2004 regulations, coal cost for 1.5 months for pit-head generating station corresponding to target availability is permissible. Accordingly, the coal cost has been worked out for 1.5 months as under:

	(Rs. in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Weighted Avg. GCV of Coal (kCal/kg)	3710	3710	3710	3710	3710
Heat Contribution by Coal (kCal/kwh)	3066.908	3066.908	3066.908	3066.908	3066.908
Specific Coal Consumption (kg/kwh)	0.83	0.83	0.83	0.83	0.83
Annual Requirement of Coal (MT)	2498331	2498331	2498331	2505176	2498331
Coal stock (MT)	312291	312291	312291	313147	312291
Weighted Avg. Price of Coal (Rs./MT)	473.73	473.73	473.73	473.73	473.73
Coal Stock-1 ½ month (Rs. in lakh)	1479	1479	1479	1483	1479

(b) Oil Stock: The petitioner has pleaded that 60 MW units (4 nos) of the generating station are not designed for HFO firing and can only burn LDO. It is observed that the petitioner has worked out the weighted average rate of secondary oil on procurement basis instead of "as consumed basis". Since the month-wise consumption of the oil has not been indicated in the petition, the

weighted average rate of secondary fuel oil has been arrived at based on the capacity (240 MW) which can burn LDO and the capacity (220 MW) which can burn HFO as main secondary fuel oil. Accordingly, weighted average rate of secondary fuel oil works out to Rs.17341 per KL.

The oil stock for 2 months oil has been considered. Details of the fuel component in working capital is as under:

	(Rs. in lakh)				
	2004-05	2005-06	2006-07	2007-08	2008-09
Weighted Avg. GCV of Oil (kCal/kg)	9455	9455	9455	9455	9455
Heat Contribution by Oil (kCal/kwh)	33.0925	33.0925	33.0925	33.0925	33.0925
Annual Requirement of oil (ltrs)	10577700	10577700	10577700	10606680	10577700
Oil stock (2 months) (KL)	1762.95	1762.95	1762.95	1767.78	1762.95
Weighted Avg. Price of Oil (Rs./KL)	17341	17341	17341	17341	17341
Oil Stock-2 month (Rs. in lakh)	306	306	306	307	306

(c) O&M Expenses: 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:

(d) Spares: The petitioner has calculated the value of maintenance spares for the purpose of working capital considering additional capital expenditure in the respective year after the date of commercial operation. The amount claimed for maintenance spares for the purpose is given below:

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

The spares requirement has been worked out by us based on the historical cost of Rs.34018 lakh (including initial spares of

Rs.1150 lakh) as on 31.3.1996 (closing date of the financial year of the take over of the generating station by the petitioner), 1% of this cost has been escalated at the rate of 6% per annum to arrive at permissible spares consumption for the relevant year. The value of spares as on 1.4.2004 works out to Rs.701 lakh.

Receivables: 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:

	2004-05	2005-06	2006-07	2007-08	2008-09
Variable Charges per year	13670	13670	13670	13707	13670
Variable Charges -2 months (Rs.in lakh)	2278.27	2278.27	2278.27	2284.51	2278.27
Fixed Charges - 2 months (Rs.in lakh)	2953	2978	3005	3034	3065
Receivables (Rs.in lakh)	5231	5256	5283	5319	5344

43. 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.

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

	2004-05	2005-06	2006-07	2007-08	2008-09
	(Rs. in lakh)				
Coal Stock	1479	1479	1479	1483	1479
Oil stock	306	306	306	307	306
O & M expenses	725	752	781	811	842
Spares	701	743	788	835	885
Receivables	5231	5256	5283	5319	5344
Total Working Capital	8442	8537	8637	8754	8855
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	865	875	885	897	908

ANNUAL FIXED CHARGES

45. A statement showing summary of the capital cost and other related details of the generating station is annexed as Annexure-II 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
Interest on Loan	1043	854	663	471	278
Interest on Working Capital	865	875	885	897	908
Depreciation	2236	2236	2236	2236	2236
Advance Against Depreciation	0	0	0	0	0
Return on Equity	4872	4872	4872	4872	4872
O & M Expenses	8700	9029	9372	9728	10098
TOTAL	17717	17866	18028	18205	18392

Note: All the figures under each head have been rounded. The figure in total column in each year is also rounded. **Because of rounding of each figure the total may not be arithmetic sum of individual items in column.**

ENERGY / VARIABLE CHARGES

46. The petitioner had claimed rate of energy charges of 65.78 paise/kWh based on the weighted average price and GCV of coal and secondary fuel oils (HSD/HFO) procured and burnt during January to March 2004.

47. The petitioner has considered the following operational norms for the computation of base rate of energy charges:

Operational norms as petitioned		
Sec. Oil Consumption	ml/kWh	3.5
Auxiliary Consumption	%	11
Heat Rate	Kcal/kWh	3100

48. The operational norms as considered in the petition are in order as per the 2004 regulations.

49. The petitioner's claim of energy charge based on the weighted average prices and GCV of fuels vis-à-vis that considered by us are given hereunder:

Description	Claimed	Allowed
Coal Price (Rs./MT)	548.60	473.73
Coal GCV (Kcal/kg.)	3289.40	3710
Price of Secondary fuel oil (Rs./KL)	20674.33 (HSD+HFO)	17341

GCV of Sec. Fuel oil (Kcal/KL)	10156.86	9455
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50. Accordingly, fuel price and GCV furnished by the petitioner in the petition and extracted above have been considered for the base energy charge computation. The base energy charge (BEC) computed is summarized below:

Description	Unit	As considered
Capacity	MW	460
No. of operating hours corresponding to PLF 80%		
Gross Station Heat Rate	kCal/kWh	3100.00
Specific Fuel Oil Consumption	ml/kWh	3.50
Aux. Energy Consumption	%	11.00
Weighted Average GCV of HFO	kCal/l	9455.00
Weighted Average GCV of Coal	kCal/kg	3710.00
Weighted Average Price of Oil	Rs/kl	17341.00
Weighted Average Price of Coal	Rs./MT	473.73
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	6.07
Heat Contributed from SFO	kCal/kWh	33.09
Heat Contributed from Coal	kCal/kWh	3066.91
Specific Coal Consumption	kg/kWh	0.83
Rate of Energy Charge from Coal	Paise/kWh	39.16
Rate of Energy Charge ex-bus	Paise/kWh	50.82

51. The base energy charge has 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 2004 regulations provide 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: -

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

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,

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

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

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

52. The petitioner has sought approval for the reimbursement of expenditure of Rs.29,691/- incurred on publication of notices in the newspapers. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in one installment in the ratio applicable for sharing of fixed charges. 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 stakeholders 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.

53. 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.

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

55. This order disposes of Petition No. 91/2004.

Sd/-
(BHANU BHUSHAN)

Sd/-
(ASHOK BASU)

MEMBER

CHAIRPERSON

New Delhi dated the 23rd March, 2007

ANNEXURE-I
CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN

		(Rs. in lakh)				
	Details of Loan	2004-05	2005-06	2006-07	2007-08	2008-09
A1	PFC-I Drawal-1					
	Net Loan-Opening	5600.00	5190.24	4643.90	4097.56	3551.22
	Repayment during the year	409.76	546.34	546.34	546.34	546.34
	Net Loan-Closing	5190.24	4643.90	4097.56	3551.22	3004.88
	Average Loan	5395.12	4917.07	4370.73	3824.39	3278.05
	Rate of Interest	9.50%	9.50%	9.50%	9.50%	9.50%
	Interest	512.54	467.12	415.22	363.32	311.41
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
2	PFC-I Drawal-2					
	Net Loan-Opening	90.00	83.41	74.63	65.85	57.07
	Repayment during the year	6.59	8.78	8.78	8.78	8.78
	Net Loan-Closing	83.41	74.63	65.85	57.07	48.29
	Average Loan	86.71	79.02	70.24	61.46	52.68
	Rate of Interest	9.00%	9.00%	9.00%	9.00%	9.00%
	Interest	7.80	7.11	6.32	5.53	4.74
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
3	PFC-I Drawal-3					
	Net Loan-Opening	110.57	102.48	91.69	80.91	70.12
	Repayment during the year	8.09	10.79	10.79	10.79	10.79
	Net Loan-Closing	102.48	91.69	80.91	70.12	59.33
	Average Loan	106.53	97.09	86.30	75.51	64.72
	Rate of Interest	9.00%	9.00%	9.00%	9.00%	9.00%
	Interest	9.59	8.74	7.77	6.80	5.83
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
4	PFC-I Drawal-4					
	Net Loan-Opening	0.00	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00	0.00
	Net Loan-Closing	0.00	0.00	0.00	0.00	0.00
	Average Loan	0.00	0.00	0.00	0.00	0.00
	Rate of Interest		0.00%	0.00%	0.00%	0.00%
	Interest	0.00	0.00	0.00	0.00	0.00
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
A	Total PFC-I Loan					

	Net Loan-Opening	5800.57	5376.14	4810.23	4244.32	3678.41
	Repayment during the year	424.43	565.91	565.91	565.91	565.91
	Net Loan-Closing	5376.14	4810.23	4244.32	3678.41	3112.50
	Average Loan	5588.35	5093.18	4527.27	3961.37	3395.46
	Rate of Interest	9.4827%	9.4827%	9.4827%	9.4827%	9.4827%
	Interest	529.93	482.97	429.31	375.64	321.98
B1	PFC-II Drawal-1					
	Net Loan-Opening	4000.00	3707.32	3317.07	2926.83	2536.59
	Repayment during the year	292.68	390.24	390.24	390.24	390.24
	Net Loan-Closing	3707.32	3317.07	2926.83	2536.59	2146.34
	Average Loan	3853.66	3512.20	3121.95	2731.71	2341.46
	Rate of Interest	9.50%	9.50%	9.50%	9.50%	9.50%
	Interest	366.10	333.66	296.59	259.51	222.44
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
2	PFC-II Drawal-2					
	Net Loan-Opening	1470.00	1362.44	1219.02	1075.61	932.20
	Repayment during the year	107.56	143.41	143.41	143.41	143.41
	Net Loan-Closing	1362.44	1219.02	1075.61	932.20	788.78
	Average Loan	1416.22	1290.73	1147.32	1003.90	860.49
	Rate of Interest	9.00%	9.00%	9.00%	9.00%	9.00%
	Interest	127.46	116.17	103.26	90.35	77.44
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
3	PFC-II Drawal-3					
	Net Loan-Opening	1292.34	1197.78	1071.70	945.62	819.53
	Repayment during the year	94.56	126.08	126.08	126.08	126.08
	Net Loan-Closing	1197.78	1071.70	945.62	819.53	693.45
	Average Loan	1245.06	1134.74	1008.66	882.58	756.49
	Rate of Interest	9.00%	9.00%	9.00%	9.00%	9.00%
	Interest	112.06	102.13	90.78	79.43	68.08
	Rep Schedule	41 Quarterly instalments wef 15.07.2004				
B	Total PFC-II Loan					
	Net Loan-Opening	6762.34	6267.54	5607.80	4948.06	4288.31
	Repayment during the year	494.81	659.74	659.74	659.74	659.74
	Net Loan-Closing	6267.54	5607.80	4948.06	4288.31	3628.57
	Average Loan	6514.94	5937.67	5277.93	4618.19	3958.44
	Rate of Interest	9.2958%	9.2958%	9.2958%	9.2958%	9.2958%
	Interest	605.61	551.95	490.62	429.30	367.97
C	State Bank Of					

	Saurashtra					
	Net Loan-Opening	3500.00	3000.00	2500.00	2000.00	1500.00
	Repayment during the year	500.00	500.00	500.00	500.00	500.00
	Net Loan-Closing	3000.00	2500.00	2000.00	1500.00	1000.00
	Average Loan	3250.00	2750.00	2250.00	1750.00	1250.00
	Rate of Interest	7.40%	7.40%	7.40%	7.40%	7.40%
	Interest	240.50	203.50	166.50	129.50	92.50
	Rep Schedule	14 Half Yearly instalments wef 05.09.2004				
D	UCO Bank					
	Net Loan-Opening	4500.00	3857.14	3214.29	2571.43	1928.57
	Repayment during the year	642.86	642.86	642.86	642.86	642.86
	Net Loan-Closing	3857.14	3214.29	2571.43	1928.57	1285.71
	Average Loan	4178.57	3535.71	2892.86	2250.00	1607.14
	Rate of Interest	7.40%	7.40%	7.40%	7.40%	7.40%
	Interest	309.21	261.64	214.07	166.50	118.93
	Rep Schedule	14 Half Yearly instalments wef 26.08.2004				
	Total Loan					
	Net Loan-Opening	20563	18501	16132	13764	11395
	Repayment during the year	2062	2369	2369	2369	2369
	Net Loan-Closing	18501	16132	13764	11395	9027
	Average Loan	19532	17317	14948	12580	10211
	Rate of Interest	8.6282%	8.6626%	8.7001%	8.7518%	8.8275%
	Interest	1685.25	1500.07	1300.50	1100.94	901.38

Annexure - II

Summary Sheet

COMPANY				NTPC Ltd.			
POWER STATION				Talcher TPS (460 MW)			
PETITION NO.				91/2004			
IA NO.				48/2005			
Tariff Setting Period				2004-09			
Rs.in lakh							
1	Capital Cost as on 31.3.2001						43183
2	Additional Capitalisation(works)						26418
		2000-01				9195	
		2001-02				1004	
		2002-03				6008	
		2003-04				10211	
		Total				26418	
3	Additional Capitalization(FERV)					0	0
		2000-04				0	
		Total				0	
4	Total Capital Cost as on 1.4.2004(1+2+3)						69601
5	Means of Finance :						
		Debt	50.00%			34801	
		Equity	50.00%			34801	
		Total	100%			69601	
6	Normative Loan as on 1.4.2004						13211
	Normative Loan outstanding as on 31.3.2000					2	
	Normative Loan arising out of ACE + FERV in 2000-04					13209	
	Total Normative Loan as on 1.4.2004					13211	
7	Cumulative repayment up to 31.3.2009						32769
	Repaid up to 31.3.2004					21589	
	1.4.2001 to 31.3.2004 (ACE + FERV)					0	
	1.4.2004 to 31.3.2009					11179	
	Total					32769	
8	Balance Normative Loan to be repaid beyond 31.3.2009						2032
9	Depreciation recovered up to 31.3.2009						35810
				Dep	AAD	Total	
	Recovered upto 31.3.2004			24631	0	24631	
	1.4.2001 to 31.3.2004 (ACE + FERV)				0	0	
	1.4.2004 to 31.3.2009			11179	0	11179	
	Adj. of Cum. Dep. due to de-capitalization			0	0	0	
	Total					35810	
10	Balance Depreciation to be recovered beyond 31.3.2009 :						26831
		Capital cost for the purpose of Depreciation				43183	
		ACE + FERV				26418	
		Capital cost as 1.4.2004				69601	
		90% of Capital Cost				62641	
		Cum. Dep. to be recovered up to 31.3.2009				35810	
		Balance dep. to be recovered beyond 31.3.2009				26831	