

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. **Shri Ashok Basu, Chairperson**
2. **Shri K.N.Sinha, Member**
3. **Shri Bhanu Bhushan, Member**
4. **Shri A.H. Jung, Member**

Petition No 144/2004

In the matter of

Approval of tariff in respect of Talcher Super Thermal Power Station Stage-I (1000 MW) for the period from 1.4.2004 to 31.3.2009.

And in the matter of

National Thermal Power Corporation Ltd.

.....**Petitioner**

Vs

1. West Bengal State Electricity Board, Kolkata
2. Bihar State Electricity Board, Patna
3. Jharkhand State Electricity Board, Ranchi
4. Grid Corporation of Orissa Ltd., Bhubaneswar
5. Damodar Valley Corporation, Kolkata
6. Power Department, Govt. of Sikkim, Gangtok
7. Tamil Nadu Electricity Board, Chennai
8. Union Territory of Pondicherry, Pondicherry
9. Uttar Pradesh Power Corporation Ltd., Lucknow
10. Power Development Department (J &K), Srinagar
11. Power Department (UT of Chandigarh), Chandigarh
12. Madhya Pradesh State Electricity Board, Jabalpur
13. Gujarat Electricity Board, Baroda
14. Electricity Department, Admn. Of Daman & Diu
15. Electricity Department, Admn. Of Dadra and Nagar Haveli, Silvassa
16. Delhi Transco Ltd, Delhi
17. Maharashtra State Electricity Board, Mumbai

...**Respondents**

The following were present

1. Shri S.D. Jha, NTPC
2. Shri Manoj Saxena, NTPC
3. Shri Shankar Saran, NTPC
4. Shri D.G. Salpekar, NTPC
5. Shri Ajay Garg, NTPC
6. Shri Balaji Dubey, NTPC
7. Shri G.K.Dua, NTPC

8. Ms Alka Sehgal, NTPC
9. Shri Ajay Dua, NTPC
10. Shri T.K. Srivastava, UPPCL
11. Shri P.K. Bagchi, WBSEB
12. Shri P.C. Saha, WBSEB
13. Shri R.B. Sharma, Advocate, BSEB

ORDER
(DATE OF HEARING : 16.2.2006)

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 Super Thermal Power Station Stage I (2X500 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”)

2. The generating station with a total capacity of 1000 MW comprises of 2 units of 500 MW each. The first unit and second unit of the generating station were declared under commercial operation on 1.1.1997 and 1.7.1997 respectively.

3. The tariff for the generating station for the period ending 31.3.2004 was approved by the Commission vide its order dated 24.8.2004 in Petition No 35/2001 based on capital cost of Rs. 251148 lakh as on 31.3.2001 and included FERV up to that date. In that petition, the petitioner had not claimed any additional capital expenditure for the period 2001-04. In the present petition, through IA No. 54/2005, the petitioner has sought amendment of capital cost as it claimed tariff based on FERV of Rs.68 lakh for the period 2001-04 and accordingly the capital base arrived at is Rs. 251216 lakh as on 31.3.2004, for the purpose determination of tariff as on 1.4.2004, against the approved cost of Rs. 254303 lakh. The present order is in the context of the claim made by the petitioner through amendment sought.

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

(Rs. in lakh)					
Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on Loan	6895	5431	3991	2690	1712
Interest on Working Capital	2210	2218	2228	2245	2264
Depreciation	9245	9245	9245	9245	9245
Advance against Depreciation	0	0	0	0	0
Return on Equity	17585	17585	17585	17585	17585
O & M Expenses	9360	9730	10120	10520	10950
TOTAL	45295	44209	43169	42285	41756

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	3763	3763	3763	3763	3763
Oil stock	336	336	336	336	336
O & M expenses	780	811	843	877	913
Spares	3777	4004	4244	4499	4769
Receivables	12902	12721	12548	12415	12313
Total Working Capital	21558	21635	21734	21900	22094
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working capital	2210	2218	2228	2245	2265

6. In addition, the petitioner has claimed energy charges. The petitioner initially claimed energy charges @ 41.33 paise/kWh. Later on, based on escalated coal price with effect from 15.6.2004 the petitioner claimed energy charges @ 49.55 paise/kWh in IA No. 54/2005. The energy charges claimed are subject to adjustment for fuel price.

7. The reply to the petition was filed by the West Bengal State Electricity Board, Bihar State Electricity Board, Damodar Valley Corporation, Tamil Nadu State Electricity Board, Uttar Pradesh Power Corporation Ltd., Madhya Pradesh State Electricity Board, Gujarat Urja Vikas Nigam Ltd. (successor of Gujarat Electricity Board), Maharashtra State Electricity Board. The other respondents have not filed their reply. 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.

8. A question regarding treatment of depreciation when it exceeds repayment of loan in a year has been raised by the beneficiaries for the period 1.4.2004 to 31.3.2009. In order dated 5.5.2006 in petition No. 162/2004 (NTPC –Vs- UPPCL and another), the Commission has held that when depreciation recovered in a year is more than the amount of repayment during that year, the entire amount of depreciation is to be considered as repayment of loan for tariff computation. In the present case also, where the depreciation recovered in a year is more than the amount of repayment during that year, the entire amount of depreciation has been considered as repayment of loan for tariff computation as per the above decision.

9. Similar approach has been adopted by the Commission, while approving tariff in respect of the transmission assets of PGCIL, and in the interest of consistency and continuity of approach same methodology needs to be followed in case of the petitioner also.

CAPITAL COST

10. 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.

11. The petitioner has considered the capital expenditure of Rs. 251216 lakh after accounting for additional capitalization of Rs. 68.00 lakh on account of FERV for the period 1.4.2001 to 31.3.2004 over the capital expenditure of Rs. 251148 lakh admitted by the Commission in the order dated 24.8.2004 *ibid*. The details of FERV claimed to be capitalised by the petitioner are as follows:

(Rs. In lakh)				
Year	2001-02	2002-03	2003-04	Total
FERV	14.00	51.00	3.00	68.00

12. The petitioner, vide affidavit filed on 16.11.2005 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 decapitalised and the details of such assets not in use/amounts decapitalized shall be furnished to the Commission along with the claims of capitalisation to be filed separately.

FERV/Extra Rupee Liability during the years 2001-04

13. Regulation 1.13 (a) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2001 provided as under:

(a) Extra rupee liability towards interest payment and loan repayment actually incurred, in the relevant year shall be admissible; provided it directly arises out of foreign exchange rate variation and is not attributable to Utility or its suppliers or contractors. Every utility shall follow the method as per the Accounting Standard-11 (Eleven) as issued by the Institute of Chartered Accountants of India to calculate the impact of exchange rate variation on loan repayment

(b) Any foreign exchange rate variation to the extent of the dividend paid out on the permissible equity contributed in foreign currency, subject to the ceiling of permissible return shall be admissible. This as and when paid, may be spread over the twelve-month period in arrears.

14. Regulation 1.7 of the 2001 regulations further provided that recovery of foreign exchange rate variation would be done directly by the utilities from the beneficiaries without filing a petition before the Commission. In case of any objections by the beneficiaries to the amounts claimed on these counts, they may file an appropriate petition before the Commission.

15. The petitioner's claim for capitalization of Rs.68 lakh on account of FERV, is matching with calculations submitted and is in accordance with AS-11 applicable up to 31.3.2004. The respondents have not objected to the petitioner's claim under this head. The claim has accordingly been admitted for tariff calculations.

16. Based on the above, after adjustment of FERV of Rs 68 lakh, the gross block as on 1.4.2004 comes to Rs.251216 lakh as per details given hereunder:

(Rs. in lakh)	
Capital cost admitted as on 31.3.2001.	251148
FERV admitted for the tariff period 2001-2004	68
Opening Capital cost as on 1.4.2004 for the tariff period 2004-2009	251216

DEBT-EQUITY RATIO

17. 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.

18. The Commission, while approving tariff vide its order dated 24.8.2004 in Petition No 35/2001 for the period from 1.4.2001 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 in the working. Accordingly, an amount of Rs. 125608 lakh has been considered as equity as on 1.4.2004.

TARGET AVAILABILITY

19. The petitioner has considered Target Availability of 80%, based on the provisions of the 2004 regulations. Accordingly, Target Availability of 80 % has been considered for recovery of full fixed charges and computation of fuel element in the working capital for the period from 1.4.2004 to 31.3.2009.

RETURN ON EQUITY

20. 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.

21. The petitioner has claimed return on equity of Rs. 125608 lakh after accounting for equity of Rs.34 lakh on account of FERV for the period 1.4.2001 to 31.3.2004. This claim has been accepted, and the petitioner's entitlement towards return on equity @ 14% works out to Rs.17585.12 lakh per annum.

INTEREST ON LOAN

22. 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 transmission licensee, 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.

23. 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's order dated 20.7.2004 in petition no. 40/2001, to which ACE and FERV for the period 2001-04 have been added.

(b) The cumulative repayment of loan up to 31.3.2004 has also been taken as per Commission's order dated 20.7.2004 in Petition No.40/2001.

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

$$\frac{\text{actual repayment during the year} \times \text{normative net loan at the beginning of the year}}{\text{actual net loan at the beginning of the year}}$$

(d) Where the normative re-payment of the year is less than the depreciation of the same year, the re-payment has been considered to the extent of depreciation, as decided above.

(e) The weighted average rate of interest has been worked taking into account the rate of interest on loans applicable to the loans identified to 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 had various GOI loans in its debt portfolio in the year 2001-02. These loans were carrying interest rates in the range of 14% to 17% per annum. All these

loans were considered while finalizing the tariff for the period 2001-04. During the financial year 2002-03, the petitioner refinanced these high interest rate bearing GOI loans with Bonds (XIII Series A, XIII Series B and XIV Series). The interest rates applicable to these Bonds are in the range 8.05% to 9.55%. The details of refinancing of loans are given hereunder:

(Rs. In lakh)

Nature of Loan	Bonds – XIII A series	Bonds XIII-B series	Bonds –XIV series
Date of Re-financing	18.4.2002	30.4.2002	1.8.2002
Amount	22242	18313	7682
Rate of Interest including Surveillance fee	9.55% + 0.03%	9.55% + 0.03%	8.05% + 0.03 %
Moratorium period	6 years from 18.4.2002	6 years from 30.4.2002	4 years from 1.8.2002
Repayment period	10 years	10 years	2 years
Re-payment effective from	18. 4.2008	30.4.2008	1.8.2006

The petitioner has considered GOI loans in its tariff calculations. The Commission during the course of hearing had asked the petitioner to submit cost-benefit analysis of the refinanced loans. The petitioner has submitted that because of moratorium period involved in Bonds, there is no benefit to respondents. The petitioner has submitted analysis comparing interest payable on GOI loans and that payable on Bonds during the tariff period 2004-09. Subsequently, the petitioner submitted analysis on entire life period of debt, as directed by the Commission, wherein the petitioner compared interest payable on GOI loans with interest payable on Bonds, without considering cash outflow due to repayment.

The cost-benefit analysis carried out in the Commission revealed that Bonds are cheaper than GOI loans. For carrying out the Net Present Value (NPV) analysis, cash

flow comprising of repayment and interest of GOI loans with that of Bonds was considered at discount factors ranging from 8% to 10% over the life of loan. It was found on analysis that NPV of the refinanced loans (Bonds) is less as compared to that of old GOI loans, indicating that the Bonds in the long run are cheaper than GOI loans.

Thus, on the analysis of terms and conditions of Bonds, it has been found that interest on original GOI loans is higher than the interest on Bonds. The 2004 regulations provide that changes to the loans terms and conditions have to be reflected from the date of refinancing and benefit passed on to the beneficiaries. As such, the terms and conditions of refinanced loans have been considered in the present loan computations. The tariff for the past period has not been revised. However, the benefit, if any, accruing as a result of re-financing shall be passed on to the beneficiaries and shall be settled mutually between petitioner and beneficiaries. In case of dispute, any of the parties may approach to the Commission.

(g) Impact of additional capitalisation on account of FERV on interest on loan during the period 2004-09 has been calculated considering refinanced loan i.e. Bonds with terms and conditions as applicable to Bonds, including surveillance fee of 0.03% payable to SEBI by NTPC on Bonds.

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

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

CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST

(Rs. in lakh)

Cumulative repayments up to previous year	For weighted average rate of Interest				
	2004-05	2005-06	2006-07	2007-08	2008-09
Gol 14% Total (Refinanced with 9.55 Bonds)					
Gross loan-Opening	1251	1251	1251	1251	1251
Cum.repayments upto prev.year	0	0	0	0	0
Net loan-Opening	1251	1251	1251	1251	1251
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	1251	1251	1251	1251	1251
Repayments	0	0	0	0	125
Net loan-Closing	1251	1251	1251	1251	1126
Average Loan	1251	1251	1251	1251	1188
Rate of Interest	9.58%	9.58%	9.58%	9.58%	9.58%
Interest on loan	120	120	120	120	114
Gol 15% Total (Refinanced with 9.55 Bonds)					
Gross loan-Opening	863	863	863	863	863
Cum.repayments upto prev.year	0	0	0	0	0
Net loan-Opening	863	863	863	863	863
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	863	863	863	863	863
Repayments	0	0	0	0	86
Net loan-Closing	863	863	863	863	777
Average Loan	863	863	863	863	820
Rate of Interest	9.58%	9.58%	9.58%	9.58%	9.58%
Interest on loan	83	83	83	83	79
Gol 15% Total (Refinanced with 8.05 Bonds)					
Gross loan-Opening	720	720	720	720	720

Cum.repayments upto prev.year	0	0	0	360	720
Net loan-Opening	720	720	720	360	0
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	720	720	720	360	0
Repayments	0	0	360	360	0
Net loan-Closing	720	720	360	0	0
Average Loan	720	720	540	180	0
Rate of Interest	8.08%	8.08%	8.08%	8.08%	8.08%
Interest on loan	58	58	44	15	0
Gol 16% Total (Refinanced with 9.55 Bonds)					
Gross loan-Opening	23598	23598	23598	23598	23598
Cum.repayments upto prev.year	0	0	0	0	0
Net loan-Opening	23598	23598	23598	23598	23598
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	23598	23598	23598	23598	23598
Repayments	0	0	0	0	2360
Net loan-Closing	23598	23598	23598	23598	21238
Average Loan	23598	23598	23598	23598	22418
Rate of Interest	9.58%	9.58%	9.58%	9.58%	9.58%
Interest on loan	2261	2261	2261	2261	2148
Gol 16% Total (Refinanced with 8.05 Bonds)					
Gross loan-Opening	5658	5658	5658	5658	5658
Cum.repayments upto prev.year	0	0	0	2829	5658
Net loan-Opening	5658	5658	5658	2829	0
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	5658	5658	5658	2829	0
Repayments	0	0	2829	2829	0
Net loan-Closing	5658	5658	2829	0	0
Average Loan	5658	5658	4244	1415	0
Rate of Interest	8.08%	8.08%	8.08%	8.08%	8.08%
Interest on loan	457	457	343	114	0

GoI 17% Total (Refinanced with 9.55 Bonds)					
Gross loan-Opening	16093	16093	16093	16093	16093
Cum.repayments upto prev.year	0	0	0	0	0
Net loan-Opening	16093	16093	16093	16093	16093
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	16093	16093	16093	16093	16093
Repayments	0	0	0	0	1609
Net loan-Closing	16093	16093	16093	16093	14484
Average Loan	16093	16093	16093	16093	15288
Rate of Interest	9.58%	9.58%	9.58%	9.58%	9.58%
Interest on loan	1542	1542	1542	1542	1465
GoI 17% Total (Refinanced with 8.05 Bonds)					
Gross loan-Opening	53	53	53	53	53
Cum.repayments upto prev.year	0	0	0	27	53
Net loan-Opening	53	53	53	26.5	0
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	53	53	53	26.5	0
Repayments	0	0	26.5	26.5	0
Net loan-Closing	53	53	26.5	0	0
Average Loan	53	53	40	13.25	0
Rate of Interest	8.08%	8.08%	8.08%	8.08%	8.08%
Interest on loan	4	4	3	1	0
TOTAL REFINANCED BONDS					
Gross loan-Opening	48236	48236	48236	48236	48236
Cum.repayments upto prev.year	0	0	0	3216	6431
Net loan-Opening	48236	48236	48236	45021	41805
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	48236	48236	48236	45021	41805
Repayments	0	0	3216	3216	4181

Net loan-Closing	48236	48236	45021	41805	37625
Average Loan	48236	48236	46628	43413	39715
Rate of Interest	9.38%	9.38%	9.42%	9.52%	9.58%
Interest on loan	4525	4525	4395	4135	3805
Escalation Credit					
Gross loan-Opening	1621	1621	1621	1621	1621
Cum.repayments upto prev.year	1586	1631	1631	1631	1631
Net loan-Opening	35	-10	0	0	0
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	35	-10	0	0	0
Repayment	45	0	0	0	0
Closing Balance	-10	-10	0	0	0
Average Loan-INR	13	-10	0	0	0
Rate of Interest	9.50%	9.50%	9.50%	9.50%	9.50%
Interest-INR	1	-1	0	0	0
Total loan					
Gross loan-Opening	49857	49857	49857	49857	49857
Cum.repayments upto prev.year	1586	1631	1631	4847	8062
Net loan-Opening	48271	48226	48236	45021	41805
FERV	0	0	0	0	0
Addition/Drawl	0	0	0	0	0
Total	48271	48226	48236	45021	41805
Repayment	45	0	3216	3216	4181
Closing Balance	48226	48226	45021	41805	37625
Average Loan	48249	48226	46628	43413	39715
Rate of Interest	9.38%	9.38%	9.42%	9.52%	9.58%
Interest	4526	4524	4395	4135	3805

25. The computations of interest on notional loan by applying weighted average interest rate are appended herein below:

COMPUTATION OF INTEREST ON LOAN

(Rs. in lakh)

Loan	2004-05	2005-06	2006-07	2007-08	2008-09
Gross loan-Opening	125608	125608	125608	125608	125608
Cumulative repayments of Loans upto previous year	83985	92860	101735	110610	119484
Net loan-Opening	41623	32748	23873	14998	6124
Increase/ Decrease due to FERV	0	0	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0	0	0
Total	41623	32748	23873	14998	6124
Repayments of Loans during the year	8875	8875	8875	8875	6124
Net loan-Closing	32748	23873	14998	6124	0
Average Net Loan	37186	28311	19436	10561	3062
Rate of Interest on Loan	9.38%	9.38%	9.42%	9.52%	9.58%
Interest on loan	3488	2656	1832	1006	293

DEPRECIATION

26. 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 capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government /Commission.

(iii) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.

(iv) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

27. The petitioner has calculated the weighted average depreciation rate of 3.65% based on the depreciation rates prescribed in Appendix II to the 2004 regulations.

28. However, on scrutiny of the details submitted by the petitioner along with the petition, it has been observed that the depreciation rates for the following assets adopted by the petitioner do not match with the depreciation rates as prescribed in the 2004 regulations:

Sl. No. (Form-12)	Asset	Depreciation by in the petitioner	Depreciation rate as per the schedule
33	IE-Temp aux. buildings	18%	6%
34	IE – Temp. Office Stores & Sheds	18%	6%
107	Satellite Communication System	11.25%	6%

* 6% Depreciation rate has been adopted since word 'Temp' was not there in Form-12 for the tariff period 2001-04.

29. The depreciation recovered in tariff up to 31.3.2004 has been taken as per the Commission's order dated 24.8.2003 in petition No. 35/2001.

30. The gross depreciable value of the asset, as per (ii) above, is 0.9 x (Rs. 251216 lakh – Rs. 4361 lakh) = Rs. 222170 lakh. Further, an amount of Rs.483 lakh on account of lease premium is has been amortized. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs. 69790 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs.113941 lakh.

31. Accordingly, for the period 1.4.2004 to 31.3.2009 the depreciation works out to Rs. 8875 lakh each year by applying rate of depreciation of 3.53 % as shown below:

(Rs. in lakh)

Details of Depreciation	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
As per order dated 20.7.2004	251148					
Addition during 2001-04 due to Additional Capitalisation	-					
Addition during 2001-04 due to FERV	68					
Gross Block as on 31.3.2004	251216					
Rate of Depreciation		3.53%	3.53%	3.53%		
Depreciable Value	222170					
Remaining Depreciable Value	122816	113941	105066	96191	87316	78442
Depreciation		8875	8875	8875	8875	8875

ADVANCE AGAINST DEPRECIATION

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

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

33. 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.

34. The petitioner has not claimed Advance Against Depreciation. Therefore, the petitioner's entitlement to Advance Against Depreciation is "nil".

O&M EXPENSES

35. The 2004 regulations have prescribed the following O&M expense norms for 500 MW units-

	(Rs. lakh /MW)				
Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for 500 MW and above sets	9.36	9.73	10.12	10.52	10.95

36. The petitioner has claimed O&M Expenses are as detailed below:

	(Rs. in lakh)				
Years	2004-05	2005-06	2006-07	2007-08	2008-09
O&M Expenses	9360	9730	10210	10520	10950

37. 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.

38. 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 inbuilt 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.

39. Based on above discussion, the year-wise O&M expenses for the generating station as per the 2004 regulations work out as follows and have been allowed :

(Rs. in lakh)					
Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses	9360	9730	10120	10520	10950

40. 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

41. 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.

42. 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.

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

- (a) **Coal stock:** The petitioner in the amended petition 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. The coal stock has been worked out for 1.5 months on the basis of operational parameters given in the 2004 regulations. The fuel cost allowed in working capital is given hereunder:

Coal Stock	2004-05	2005-06	2006-07	2007-08	2008-09
Weighted Avg. GCV of Coal (kCal/kg)	3375.33	3375.33	3375.33	3375.33	3375.33
Heat Contribution by Coal (kCal/kwh)	2430.24	2430.24	2430.24	2430.24	2430.24
Specific Coal Consumption (kg/kwh)	0.72	0.72	0.72	0.72	0.72
Annual Requirement of Coal (MT)	5045765	5045765	5045765	5059589	5045765
Coal Stock (1.5 months (MT)	630721	630721	630721	632449	630721
Weighted Avg. Price of Coal (Rs./MT)	490.88	490.88	490.88	490.88	490.88
Coal Stock-1.5 months (Rs.in Lakhs)	3096.08	3096.08	3096.08	3104.56	3096.08

Oil Stock: The petitioner has also considered HSD/LDO in its computations on working capital. HSD/LDO are used only during cold boiler start up. Hot start ups and Flame stability during low load conditions are taken care of by HFO, which is the main secondary fuel oil. Since HFO is the main secondary fuel oil, it has been considered for the computation of working capital requirements and base rate of energy charge. The oil stock for 2 months as per the operational parameters and weighted average price of oil has been considered, the details of which are extracted below:

Oil Stock	2004-05	2005-06	2006-07	2007-08	2008-09
Weighted Avg. GCV of Oil (kCal/Lit.)	9880.00	9880.00	9880.00	9880.00	9880.00
Heat Contribution by Oil (kCal/kwh)	19.76	19.76	19.76	19.76	19.76
Annual Requirement of Oil (Itrs)	14016000	14016000	14016000	14054400	14016000
Oil Stock for 2 months (KL)	2336.00	2336.00	2336.00	2342.40	2336.00
Weighted Avg. Price of Oil (Rs./KL)	13367.50	13367.50	13367.50	13367.50	13367.50
Oil Stock- 2 months (Rs. in Lakhs)	312.26	312.26	312.26	313.12	312.26

(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 respective years after the date of commercial operation. The amount claimed for maintenance spares is given below :

(Rs.in lakh).

Year	2004-05	2005-06	2006-07	2007-08	2008-09
Amount claimed for maintenance spares	3777	4004	4244	4499	4769

The spares requirement has been worked out based on the capital cost of Rs. 153988 lakh (including initial spares of Rs.5978 lakh.) as on 31.3.98 (closing date of financial year of the date of commercial operation). 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. 3478 lakh.

(e) **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:

Computation of receivables component of Working Capital

Variable Charges	2004-05	2005-06	2006-07	2007-08	2008-09
Coal (Rs/kwh)	0.3821	0.3821	0.3821	0.3821	0.3821
Oil (Rs/kwh)	0.0289	0.0289	0.0289	0.0289	0.0289
Rs./kwh	0.4110	0.4110	0.4110	0.4110	0.4110
Variable Charges per year	26642	26642	26642	26715	26642
Receivables					
Variable Charges -2 months	4440.37	4440.37	4440.37	4452.54	4440.37
Fixed Charges - 2 months	6888	6813	6744	6678	6634
Receivables (Rs in lakh)	11316	11242	11173	11118	11062

44. 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.

45. 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
Fuel Cost	0	0	0	0	0
Coal Stock	3096	3096	3096	3105	3096
Oil stock	312	312	312	312	312
O & M expenses	780	811	843	877	913
Spares	3478	3686	3908	4142	4391
Receivables	11316	11242	11173	11118	11062
Total Working Capital	18982	19147	19332	19554	19774
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working capital	1947	1963	1982	2004	2027

ANNUAL FIXED CHARGES

46. A statement showing summary of the capital cost and other related matters is annexed to this order. The annual fixed charges for the period 1.4.1999 to 31.3.2004 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	3488	2656	1832	1006	293
2	Interest on Working Capital	1946	1963	1982	2004	2027
3	Depreciation	8875	8875	8875	8875	8875
4	Advance against Depreciation	0	0	0	0	0
5	Return on Equity	17585	17585	17585	17585	17585
6	O & M Expenses	9360	9730	10120	10520	10950
	TOTAL	41254	40808	40393	39990	39730

ENERGY/VARIABLE CHARGES

47. The petitioner has claimed the rate of energy charge at 49.55 paise/kWh on the ground that the coal price has increased with effect from 15.6.2004. The Fuel Price Adjustment clause provided in the 2004 regulations takes care of revision of energy charges on subsequent revision of coal price on month to month basis and base rate of energy charge need not be re-worked on the basis of increased coal prices w.e.f 15.6.2004 .Further, it is observed that originally the petitioner has claimed energy charge of 41.33 paise/kWh.

48. As discussed in para 43 under “Oil Stock” HFO has also been considered for energy charge computation. FPA clause provided in the 2004 regulations will take care of the cost of HSD/LDO used by the generating station on “as consumed basis” on month to month basis. As such, the petitioner is not being denied the reimbursement of HSD/LDO whenever used.

49. The fuel price and GCV furnished by the petitioner for the month of Jan, Feb, and March 2004 in the petition have been considered for the Base Energy Charge computation. The Base Energy Charges (BEC) computed based on the data furnished by the petitioner are summarised below:

Computation of Energy Charges

Description	Unit	As considered
Capacity	MW	1000.00
Gross Station Heat Rate	kCal/kWh	2450.00
Specific Fuel Oil Consumption	MI/kWh	2.00
Aux. Energy Consumption	%	7.50
Weighted Average GCV of HFO	kCal/l	9880.00
Weighted Average GCV of Coal	kCal/Kg	3375.00
Weighted Average Price of Oil	Rs./KL	13367.50
Weighted Average Price of Coal	Rs./MT	490.88
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	2.673
Heat Contributed from SFO	kCal/kWh	19.76
Heat Contributed from Coal	kCal/kWh	2430.24
Specific Coal Consumption	Kg/kWh	0.72
Rate of Energy Charge from Coal	Paise/kWh	35.347
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	41.103

50. 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,

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

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

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

51. The petitioner has sought approval for the reimbursement of expenditure of Rs. 9,39,788/- 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 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.

52. 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.

53. 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.

54. This order disposes of Petition No.144/2004 as also IA No. 54/2005.

Sd/-	Sd/-	Sd/-	Sd/-
(A.H. JUNG) MEMBER	(BHANU BHUSHAN) MEMBER	(K.N. SINHA) MEMBER	(ASHOK BASU) CHAIRPERSON

New Delhi dated the 9th May 2006

Summary Sheet						
Name of the Company		NTPC Ltd.				
Name of the Station		TALCHAR STPS-STAGE-I				
Tarrif setting Period		2004-09				
Petition No.		144/2004				
1	Capital Cost of the Project as on 31.3.2001					251148
2	Additional Capitalisation(works)					0
	2001-02				0	
	2002-03				0	
	2003-04				0	
	Total				0	
3	Additional Capitalisation(FERV) No:					68
	2001-02				14	
	2002-03				51	
	2003-04				3	
	Total				68	
4	Total Capital Cost as on 1.4.2004(1+3+4)					251216
5	Means of Finance ¹ :					
	Debt	50.00%			125608	
	Equity	50.00%			125608	
	Total	100.00%			251216	
6	Debt details-Notional Debt (Net) as on 1.4.2004 Notional debt (Net) as on 1.4.2004					125608
	Notional Debt(Gross)				125608	
	Repayment upto 31.3.2004				83985	
	Balance Debt				41623	
7	Weighted Av. Rate of interest- Calculated					
	2004-05	2005-06	2006-07	2007-08	2008-09	
	9.38%	9.38%	9.42%	9.52%	9.58%	
8	Depreciation recovered upto 31.3.2009 :					144210
	Recovered upto 31.3.2001		69786	0	69786	
	1.4.2001 to 31.3.2004		27354	2692	30046	
	1.4.2004 to 31.3.2009		44374	0	44374	
	ERV Impact From 2001-04		4	0	4	
	Total		144210			
9	Balance Depreciation to be recovered beyond 31.3.2009 :					78443
	Capital cost for the purpose of Depreciation				251148	
	ACE + FERV				68	
	Capital cost as 1.4.2004				251216	
	Less: Land Cost				4361	
	90% of Capital Cost as above				222170	
	Portion of Lease premium to be amortized				483	
	Cum. Depreciation to be recovered upto 31.3.2009				144210	
	Balance				78443	

