

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram :

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

Petition No. 149/2004

In the matter of

Approval of tariff in respect of Simhadri Thermal Power Station (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. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad,
2. APEPDCL(AP Eastern Power Distribution Company Ltd.) Visakhapatnam,
3. APSPDCL(AP Southern Power Distribution Company Ltd), Tirupathi,
4. APNPDCL(AP Northern Power Distribution Company Ltd), Warangal,
5. APCPDCL(AP Central Power Distribution Company Ltd),Hyderabad.

---Respondents

The following were present

1. Shri V.B.K.Jain, NTPC
2. Shri I.J.Kapoor, NTPC
3. Shri S.D.Jha, NTPC
4. Shri Rajat Singhal, NTPC
5. Shri S.K.Samui, NTPC
6. Shri D.G.Salpekar, NTPC
7. Ms. Alka Saigal, NTPC
8. Ms..Rachna Mehta, NTPC
9. Shri.M .Saxena, NTPC
10. Shri.S.K.Samvi, NTPC
11. Shri.Robin Majumdar, NTPC
12. Shri.P.B.Venkatesh, NTPC
13. Shri.Ajay Garg, NTPC
14. Shri.Surendra, NTPC
15. Shri.R.Datt, NTPC
16. Shri.Balaji Dubey, NTPC
17. Shri.R.Narayanan, APTransco.
18. Shri.N.Sreeramachandramurthy, APTransco.

ORDER
(DATE OF HEARING : 15.12.2005)

This petition has been filed by the petitioner, a generating company owned or controlled by the Central Government for approval of tariff in respect of Simhadri Thermal Power Station (1000 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 dates of commercial operation of the units of the generating station are as under :

Unit-I	1.9.2002
Unit-II	1.3.2003

3. The tariff for the generating station for the period from 1.9.2002 to 31.3.2004 was approved by the Commission vide its order dated 19.5.2004 in Petition No. 2/2002, based on the capital cost of Rs.318076 lakh. The petitioner’s claim for tariff in the present petition is based on the capital cost of Rs.345208 lakh which includes admitted capital cost of Rs.318076 lakh as on 31.3.2003, FERV amounting to Rs.14296 lakh and additional capital expenditure of Rs.12836 lakh for the period 1.3.2003 to 31.3.2004. The Commission vide its order dated 4.4.2005 in Petition No.165/2004 approved additional capital expenditure of Rs.12836 lakh on works for the period 1.3.2003 to 31.3.2004. Subsequently, the

petitioner filed I.A No.40/2005 to amend the petition and revised its claim for tariff on account of revised coal prices with effect from 15.6.2004. There was no change in the capital cost of Rs 345208 lakh. The petitioner had initially impleaded Transmission Corporation of Andhra Pradesh Ltd.(APTRANSCO), Hyderabad, as the only respondent, being the only beneficiary from Simhadri TPS at the time of filing the petition. Later through IA 40/2005 the petitioner impleaded four newly formed distribution companies , AP Eastern Power Distribution Company Ltd Visakhapatnam, AP Southern Power Distribution Company Ltd, Tirupathi, AP Northern Power Distribution Company Ltd, Warangal, and AP Central Power Distribution Company Ltd, Hyderabad as respondents as the rights and obligations of APTRANSCO under agreement relating to bulk supply of electricity were vested in these four companies by virtue of Govt of AP notification dated 9.6.2005. Accordingly the four distribution companies were added as respondents.

4. The year-wise details of additional capitalisation approved by the Commission by order dated 4.4.2005, in Petition No.165/2004 are as under :

(Rs in lakh)

1.3.2003 to 31.3.2003	1887
2003-04	10949
Total	12836

5. The details of the annual fixed charges claimed by the petitioner as on 1.4.2004 and based on escalated coal prices with effect from 15.6.2004 are given hereunder:

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan	7639	7639	7606	7506	7373
Interest on Working Capital	3196	3230	3265	3301	3339
Depreciation	13083	13083	13083	13083	13083
Advance against Depreciation	0	0	0	0	0
Return on Equity	14499	14499	14499	14499	14499
O&M expenses	9360	9730	10120	10520	10950
TOTAL	47777	48181	48573	48909	49244

6. 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	8873	8873	8873	8873	8873
Oil Stock	415	415	415	415	415
O & M expenses	780	811	843	877	913
Spares	3863	4094	4340	4601	4877
Receivables	17251	17318	17384	17440	17496
Total Working Capital	31182	31512	31856	32205	32573
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working capital	3196	3230	3265	3301	3339

7. In addition, the petitioner has claimed energy charge of 85.97 paise/kWh.

The energy charge claimed is subject to fuel price variation.

8. The reply to the petition was filed by the APCPDCL on behalf of all respondents. The petitioner has published notices in the newspapers in accordance with the procedure specified by the Commission. However, no objections or suggestions have been received in response to these notices.

De-capitalization of Assets

9. The petitioner has de-capitalised certain assets during 2002-04. These de-capitalised assets were removed from the gross block to arrive at admissible

additional capitalization for the purpose of capital cost by order dated 4.4.2005 in Petition No.165/2004. These assets broadly fall under two categories viz. items which were capitalised on the date of commercial operation and subsequently withdrawn due to non-materialisation and the physical assets which were not in use. It is observed that the petitioner is maintaining accounts on accrual basis. This has resulted in inflated capital base in earlier tariff period due to capitalization of liability provision. The expenditure for which provision was made did not materialise and it was de-capitalised subsequently. But the petitioner has been charging tariff on the inflated capital base till 31.3.2004. In these cases, the past period calculations to assess impact on tariff already recovered have not been re-opened and are to be mutually settled between the petitioner and the beneficiaries. In case of a dispute, any of the parties may approach the Commission for appropriate relief. The amount decapitalised on this account is Rs.1730 lakh (up to the date of commercial operation is Rs.1718 lakh). As regards the physical assets which are not in use, the petitioner has transferred assets amounting to Rs. 663 lakh to other generating stations during the period 1.4.2003 to 31.3.2004. Reduction of cumulative depreciation of these assets has not been considered as the corresponding adjustment in cumulative depreciation of other generating stations of the petitioner where assets have been transferred, has not been carried out.

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 claimed tariff based on the capital cost of Rs 345208 lakh, which included FERV amounting to Rs.14296 lakh, during 2003-04, and the admitted additional capital expenditure of Rs.12836 lakh (on works) during 1.3.2003 to 31.3.2004.

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 de-capitalised and the details of such assets not in use/amounts decapitalised shall be furnished to the Commission along with the claims for capitalisation to be filed separately.

13. The Commission vide its order dated 4.4.2005 in Petition No.165/2004 has decided that the opening capital cost (excluding FERV) for the purpose of tariff for the period 2004-09, as on 1.4.2004 shall be Rs.330912 lakh. This has been adopted for the purpose of tariff in this petition. Next we consider the additional capitalisation on account of FERV.

FERV / Extra Rupee Liability during the years 2001-04

14. 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 claimed over the twelve-month period in arrears.

15. Regulation 1.7 of the 2001 regulations, further provides 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.

16. The petitioner has claimed FERV as per the following details :

(Rs. In lakh)

Particulars	2003-04	Total
FERV	14295	14295

17. The respondents have opposed the petitioner's claim for capitalisation of FERV.

18. The petitioner has stated that it has have replaced domestic loan with foreign currency loan since rate of interest on foreign loans is cheaper than rates on

domestic loans. They have also furnished cost-benefit analysis comparing interest on loan of the two streams.

19. The Net Present Value analysis, with cash outflow comprising of repayment and interest and impact of FERV getting capitalised due to refinancing, and adjustment of FERV henceforth will be on year to year basis as income or expense in the period in which it arises, as per Regulation 9 of the 2004 regulations, reveal that replacing domestic borrowing with foreign loans is beneficial to the respondents. Hence calculation of FERV has been done on the refinanced loan.

20. The computation of FERV is on normative basis. Based on normative loan outstanding, FERV works out to Rs.14295 lakh, which has been admitted for tariff calculations:

21. Based on the above, the gross block as on 1.4.2004 comes to Rs.345207 lakh as per details given hereunder:

(Rs. in lakh)	
Capital cost admitted as on 1.4.2004 as per order dated 4.4.2005	318076
FERV admitted for the tariff period 2003-2004	14295
Additional capitalization approved by the Commission for the period 2001-04	12836
Opening Capital cost as on 1.4.2004	345207

DEBT-EQUITY RATIO

22. 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.

23. The Commission, while approving tariff vide its order dated 19.5.2004, in Petition No 2/2002, for the period from 1.9.2002 to 31.3.2004, had considered the debt-equity ratio of 75.4:24.6, as the petitioner did not place on record the final approved financial package. The petitioner has placed on record the letter, seeking the debt-equity ratio of 70:30, as per the approved financial package. For the purpose of the present petition, additional capitalisation on works (Rs 12836 lakh) for the period 2002-04 and on account of FERV (Rs 14295 lakh) for the period 2003-04 have been adjusted so as to arrive at debt and equity in the ratio of 70:30. Accordingly, an amount of Rs.103562 lakh has been considered as equity as on 1.4.2004.

TARGET AVAILABILITY

24. 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

25. 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.

26. The petitioner has claimed return on equity @ 14%. The return on equity has been worked out on equity of Rs.103562 lakh. The petitioner shall recover an

amount of Rs.14499 lakh each year, during the period 2004-09, as return on equity.

INTEREST ON LOAN

27. 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 beneficiaries.

(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 of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment as ordered by the Commission to the generating company during the pendency of the any dispute relating to swapping of loan.

(f) In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.

(g) The generating company shall not make any profit on account of swapping of loan and interest on loan.

28. The interest on loan has been worked out in the manner as mentioned below:

(a) The outstanding normative loan as per previous tariff order dated 19.5.2004 is 240294 lakh. To this notional loan arising due to additional capital expenditure on works and FERV for the year 2003-04, being Rs. 1351 lakh, has been added. Thus the total outstanding notional loan is Rs. 241645 lakh.

(b) Cumulative repayment of loan up to 31.3.2004, has been considered as per order dated 19.5.2004.

(c) Actual repayment of actual loan has been used to calculate normative repayment of loan. Normative repayment has been worked out as per formula below:

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

(d) The Government guarantee fee at 1.20%, for JBIC loans, in this station, has been allowed for calculation for interest on loan.

(e) Loan draws upto 31.3.2004 has been considered. Foreign loan draws for replacing domestic borrowings has been included and domestic loan draws have been excluded for the reason mentioned at para 18 above. The effect of FERV on foreign loans has been considered.

(f) Repayment in case of foreign loan has been considered as per schedule submitted by the petitioner and the rate of exchange as on 31.3.2004.

(g) Where the normative repayment of the loan is less than the depreciation of the same year, the repayment has been considered to the extent of depreciation in accordance with the order dated 5.5.2006 in Petition No.162/2004.

(h) The weighted average rate of interest calculated on actual loan and actual repayment have been applied on normative loan for computation of interest on loan component of tariff.

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

CALCULATIONS OF WEIGHTED AVERAGE RATE OF INTEREST

(Rs in lakh)

Details of Loan	2004-05	2005-06	2006-07	2007-08	2008-09
JBIC-I					
Net Loan-Opening	82095.66	82095.66	82095.66	80093.32	76088.66
Repayment during the year	0.00	0.00	2002.33	4004.67	4004.67
Net Loan-Closing	82095.66	82095.66	80093.32	76088.66	72083.99
Average Loan	82095.66	82095.66	81094.49	78090.99	74086.32
Rate of Interest	3.50%	3.50%	3.50%	3.50%	3.50%
Interest	2873.35	2873.35	2838.31	2733.18	2593.02
Rep Schedule					
JBIC-II					
Net Loan-Opening	51669.14	51669.14	51669.14	51669.14	51669.14
Repayment during the year	0.00	0.00	0.00	0.00	0.00
Net Loan-Closing	51669.14	51669.14	51669.14	51669.14	51669.14
Average Loan	51669.14	51669.14	51669.14	51669.14	51669.14
Rate of Interest	3.00%	3.00%	3.00%	3.00%	3.00%
Interest	1550.07	1550.07	1550.07	1550.07	1550.07
Rep Schedule					
JBIC-III					
Net Loan-Opening	115674.67	115674.67	115674.67	115674.67	115674.67
Repayment during the year	0.00	0.00	0.00	0.00	0.00
Net Loan-Closing	115674.67	115674.67	115674.67	115674.67	115674.67
Average Loan	115674.67	115674.67	115674.67	115674.67	115674.67
Rate of Interest	3.00%	3.00%	3.00%	3.00%	3.00%

Interest	3470.24	3470.24	3470.24	3470.24	3470.24
Rep Schedule					
JBIC-IV					
Net Loan-Opening	5303.59	5303.59	5303.59	5303.59	5303.59
Repayment during the year	0.00	0.00	0.00	0.00	0.00
Net Loan-Closing	5303.59	5303.59	5303.59	5303.59	5303.59
Average Loan	5303.59	5303.59	5303.59	5303.59	5303.59
Rate of Interest	3.00%	3.00%	3.00%	3.00%	3.00%
Interest	159.11	159.11	159.11	159.11	159.11
Rep Schedule					
Total Loan					
Net Loan-Opening	254743.06	254743.06	254743.06	252740.73	248736.06
Repayment during the year	0.00	0.00	2002.33	4004.67	4004.67
Net Loan-Closing	254743.06	254743.06	252740.73	248736.06	244731.39
Average Loan	254743.06	254743.06	253741.89	250738.39	246733.73
Rate of Interest	3.1611%	3.1611%	3.1598%	3.1557%	3.1501%
Interest	8052.77	8052.77	8017.73	7912.61	7772.44

30. 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	Upto 1.4.2004	2004-05	2005-06	2006-07	2007-08	2008-09
Gross loan as per earlier tariff order	240294					
Addition due to Additional Capitalisation	639					
Addition due to FERV	712					
Gross Normative loan	241645	241645	241645	241645	241645	241645
Cumulative repayments of loans upto previous year		0	11494	22987	34481	45975
Net loan-Opening		241645	230151	218658	207164	195670
Repayments of loans during the year		11494	11494	11494	11494	11494
Net loan-Closing		230151	218658	207164	195670	184176
Average Net Loan		235898	224405	21291	201417	189923
Rate of Interest on Loan		3.1611%	3.1611%	3.1598%	3.1557%	3.1501%
Interest on loan		7457	7094	6728	6356	5983

DEPRECIATION

31. 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 life of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalization on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government / Commission

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

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

32. Weighted average rate of depreciation calculated, based on gross value of assets is 3.33% against the petitioner's claim of 3.79%. The petitioner has considered depreciation rate of 3.6% for offsite buildings though the depreciation rates, specified as per 2004 regulations, is 1.8%. The petitioner has also adopted depreciation rate of 25% on assets amounting to Rs.5088 lakh, not owned by it on the ground that the assets are to be amortized during four years irrespective of useful life of the assets.

33. As the adoption of the rate of 25%, would result in accelerated depreciation, it has been decided to allow the depreciation rates corresponding to the useful life of the assets and the same has been considered.

34. The cost of land to be excluded in the present case is Rs.7798 lakh. Amortisation of leasehold land (restricted to 25 years of plant life) has been considered while calculating 90% depreciation value. The gross depreciable value of the generating station, excluding land cost, and addition due to amortization of lease hold land is $0.9 \times (\text{Rs. } 345207 \text{ lakh} - \text{Rs } 7798 \text{ lakh}) + \text{Rs } 31 \text{ lakh} = \text{Rs } 303700 \text{ lakh}$. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004, after adding depreciation of Rs 266 lakh recovered on account of FERV for the period 1.4.2001 to 31.3.2004, is Rs.16469 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs.287231 lakh. The petitioner is entitled to recover depreciation of Rs 11494 lakh. on the capital cost of Rs 345207 lakh.

ADVANCE AGAINST DEPRECIATION

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

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

36. 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.

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

O&M EXPENSES

38 The 2004 regulations have prescribed the following O&M expense norms for a generating station with 500 MW units :

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

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

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

40. O&M expenses claimed by the petitioner are in order and are allowed.

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

42. 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.

43. 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

44. 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.

45. 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.

46. 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 period based on the price and GCV of the fuel applicable during preceding three months and prevailing applicable rate of interest and is not to be revised based on subsequent revision of the price of fuel or applicable rate of interest. As such, the plea of the petitioner to allow interest on working capital based on escalated fuel price w.e.f 15.6.2004 cannot be accepted. The coal stock has been worked out for two months on the basis of operational parameters given in the 2004 regulations and weighted average price and GCV of coal.

(b) Secondary Fuel Oil: The petitioner has claimed cost of fuel in the working capital based on price and GCV of coal and secondary fuel oils (LDO & HFO) procured and burnt for preceding three months of January 2004 to March 2004. Since HFO is the main secondary fuel oil, it is considered for the computation of working capital and base rate of energy charge.

Based on weighted average GCV(3553.33kCal/Kg for coal and 9819kCal/KL for HFO only) and price of fuels (coal at 1004.81 Rs/MT and HFO at 13059.18 Rs /KL) the fuel component in working capital works out as follows :

(Rs in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08 (leap year)	2008-09
Cost of coal for two months	8027.17	8027.17	8027.17	8049.16	8027.17
Cost of secondary fuel oil for two months.	305.06	305.06	305.06	305.90	305.06

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

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

(Rs.in lakh)					
Year	2004-05	2005-06	2006-07	2007-08	2008-09
Amount claimed	38.63	40.94	43.40	46.01	48.77

The 2004 regulations do not provide for taking into account additional capital expenditure for working out the cost of maintenance spares for the working capital. The cost of maintenance spares for the working capital has, therefore, been computed based on corrected historical cost of Rs.320581 lakh, after deducting the amount of Rs.2009 lakh on initial spares as on 1.3.2003 and an amount of Rs 1718 lakh towards decapitalisation of capital assets up to the date of commercial operation of the station. The value of the maintenance spares as on 1.4.2004 works out to Rs.3415 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:

(Rs.in lakh)

Variable Charges	2004-05	2005-06	2006-07	2007-08	2008-09
Coal (Rs/kwh)	0.7430	0.7430	0.7430	0.7430	0.7430
Oil (Rs/kwh)	0.0282	0.0282	0.0282	0.0282	0.0282
Rs./kwh	0.7712	0.7712	0.7712	0.7712	0.7712
Variable Charges per year	49993	49993	49993	50130	49993
Receivables					
Variable Charges -2 months	8332	8332	8332	8355	8332
Fixed Charges - 2 months	7621	7627	7635	7645	7659
Receivables (Rs in lakh)	15954	15959	15967	16000	15991

47. 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.

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

Calculation of Interest on Working Capital

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Coal Stock- 2 months	8027	8027	8027	8049	8027
Oil stock -2 months	305	305	305	306	305
O & M expenses	780	811	843	877	913
Spares	3415	3620	3837	4068	4312
Receivables	15954	15959	15967	16000	15991
Total Working Capital	28481	28722	28980	29300	29547
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Total Interest on Working capital	2919	2944	2970	3003	3029

ANNUAL FIXED CHARGES

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

(Rs. in lakh)

	Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
1	Interest on Loan	7457	7094	6728	6356	5983
2	Interest on Working Capital	2919	2944	2970	3003	3029
3	Depreciation	11494	11494	11494	11494	11494
4	Advance against Depreciation	0	0	0	0	0
5	Return on Equity	14499	14499	14499	14499	14499
6	O & M Expenses	9360	9730	10120	10520	10950
	TOTAL	45729	45760	45810	45872	45954

ENERGY/VARIABLE CHARGES

50. The petitioner has claimed the rate of energy charge at 85.97 paise/kWh as revised in the I.A. on the ground that the coal price had increased from 1004/MT to Rs.1063/MT. The Commission during the course of hearing held that "Fuel price Adjustment " clause in the Regulations takes care of the revision of energy charges on subsequent revision of coal price on month to month basis and base rate of energy charge need not be reworked on the basis of increased coal prices w.e.f.15.6.2004. Further, the Commission decided to allow HFO as secondary fuel oil which is the main secondary fuel, for the purpose of base rate of energy charges. The base rate of energy charge works out to be 77.12 paise/kWh as per the following computations based on fuel prices and GCVs

Gross Station Heat Rate	kCal/kWh	2450.00
Specific Fuel Oil Consumption	ml/kWh	2.00
Aux. Energy Consumption	%	7.50
Weighted Average GCV of Oil	kCal/l	9819.00
Weighted Average GCV of Coal	kCal/Kg	3553.33
Weighted Average Price of Oil	Rs./KL	13059.18
Weighted Average Price of Coal	Rs./MT	1004.81
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	2.61
Heat Contributed from SFO	kCal/kWh	19.64
Heat Contributed from Coal	kCal/kWh	2430.36
Specific Coal Consumption	Kg/kWh	0.68
Rate of Energy Charge from Coal	Paise/kWh	68.73
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	77.12

51. 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,

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

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

Where,

- SFC_n** – Normative Specific Fuel Oil consumption in l/kWh
SHR_n – Normative Gross Station Heat Rate in kCal/kWh
AC_n – Normative Auxiliary Consumption in percentage
P_{om} – Weighted Average price of fuel oil on as consumed basis during the month in Rs./KL.
K_{om} – Weighted average GCV of fuel oils fired at boiler front for the month in Kcal/Litre
P_{os} – Base value of price of fuel oils as taken for determination of base energy charge in tariff order in Rs. / KL.

K_{os}	–	Base value of gross calorific value of fuel oils as taken for determination of base energy charge in tariff order in Kcal/Litre
P_{cm}	–	Weighted average price of coal procured and burnt during the month at the power station in Rs. / MT.
K_{cm}	–	Weighted average gross calorific value of coal fired at boiler front for the month in Kcal/Kg
P_{cs}	–	Base value of price of coal as taken for determination of base energy charge in tariff order in Rs. /MT
K_{cs}	–	Base value of gross calorific value of coal as taken for determination of base energy charge in tariff order in kCal/Kg

IMPACT OF ADDITIONAL CAPITALISATION

52. The Commission has decided that additional capital expenditure be added to the gross block as on 1.3.2003 to arrive at gross block as on 1.4.2004 for the purpose of fixation of tariff for the period 2004-05 to 2008-09. The Commission has further ordered that the petitioner would be entitled to earn return on equity @ 16% on equity portion of additional capitalization approved and interest on loan at the rate as applicable during 2002-03 and 2003-04. The return on equity and interest on loan are payable on additional capitalization from 1st April of the financial year following the financial year to which additional capital expenditure relates.

53. Based on the above, the petitioner shall be entitled to recover a total amount of Rs.290.52 lakh (in five yearly installments of Rs.58.10 lakh commencing from 1.4.2004) from the respondents, through tariff on account of return on equity and interest on loan on additional equity and loan on account of additional capitalisation on works :

(Rs. In lakh)

Period		2001-02	2002-03	2003-04	Total
Additional Capitalisation			1887.47	10948.47	12835.94
Financing of Additional Capitalisation					
Notional Loan		0.00	93.97	545.10	639.08
Notional Equity		0.00	1793.47	10403.23	12196.70
Total					
Effective Additional Capitalisation					
Opening Loan Balance		0.00	0.00	93.97	
Addition of Loan		0.00	93.97	545.10	639.08
Repayment of Loan		0.00	0.00	0.00	0.00
Closing Loan Balance		0.00	93.97	639.08	
Effective Loan			0.00	93.97	
Weighted Average Rate of Interest on Loan			3.8179%	3.7959%	
Effective Equity			0.00	1793.47	
Interest on Loan			0.00	3.57	3.57
Return on Equity	16%		0.00	286.96	286.96
Impact of Additional Capitalisation			0.00	290.52	290.52

54. The petitioner vide its affidavit dated 8.3.2006 has submitted that the expenditure amounting to Rs.1,21,130/- has been incurred towards publication of notices in the newspapers and has sought approval for reimbursement of this expenditure. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in one installments in the ratio applicable for sharing of fixed charges, subject to the petitioner filing an affidavit before the Commission. 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.

55. 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.

55. 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.

56. This order disposes of Petition No.149/2004.

Sd/-
(A.H. JUNG)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRPERSON

New Delhi, dated the 22nd September, 2006

Summary Sheet				
COMPANY		NTPC Ltd.		
POWER STATION		SIMHADRI (1000 MW)		
PETITION NO.		149/2004		
IA NO.		40/2005		
Tariff Setting Period		2004-09		
(Rs.in lacs)				
1	Capital Cost of the Project as on 31.3.2003			318076
2	Additional Capitalisation(works)			12836
	2002-03(1.3.2003 to 31.3.2003)		1887	
	2003-04		10948	
	Total		12836	
3	Additional Capitalisation(FERV)			14295
	2003-04		14295	
	Total		14295	
4	Total Capital Cost as on 1.4.2004(1+2+3)			345207
5	Means of Finance¹ :			
	Debt	70.00%	241645	
	Equity	30.00%	103562	
	Total	100.00%	345207	
6	Normative Loan as on 1.4.2004			241645
	Normative Loan O/S as on 31.3.2004		240294	
	Normative Loan due to ACE+FERV in 01-04		1351	
	Total Normative Loan as on 1.4.2004		241645	
7	Cumulative Repayment upto 31.3.2009 :			57469
	Repaid upto 31.3.2004		0	
	1.4.01 to 31.3.2004 (ACE & FERV)		0	
	1.4.2004 to 31.3.2009		57469	
	Total		57469	
8	Balance Normative Loan to be repaid beyond 31.3.2009 :			184176
9	Depreciation recovered upto 31.3.09 :			73938
		Dep	AAD	Total
	Recovered upto 31.3.2004	16203		16203
	1.4.01 to 31.3.2004 (ACE & FERV)	266	0	266
	1.4.2004 to 31.3.2009	57469	0	57469
	Adj.of Cum.Dep.due to decapitalisation	0	0	0
	Total			73938
10	Balance Depreciation to be recovered beyond 31.3.2009 :			229762
	Capital cost for the purpose of Depreciation			318076
	ACE + FERV			27131
	Capital cost as 01.4.2004			345207
	Less: Land Cost			7798
				337410
	90% of Capital Cost as above			303669
	Amortisation of Lease land in 25 years			31
	90% dep. Value incl. lease amortisation			303700
	Cum. Depreciation to be recovered upto 31.3.09			73938
	Balance Depreciation to be recovered beyond 31.3.09			229762