CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram
Shri R.Krishnamoorthy, Member
Shri S. Jayaraman, Member
Shri V.S.Verma, Member

Petition No 63/2009

In the matter of

Petition under Section 62 and 79(1) (a) of the Electricity Act, 2003 read with Chapter – V of the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 for approval of tariff of Sipat Super Thermal Power Station, Stage-II (1000 MW) for the period 20.6.2008 to 31.3.2009.

And

Petition No.140/2009

In the matter of

Determination of impact of additional capital expenditure incurred during the period from 1.1.2009 to 31.3.2009 on fixed charges of Sipat STPS, Stage-II (1000 MW).

And in the matter of

National Thermal Power Corporation Ltd. ……**Petitioner**

Vs

1. Madhya Pradesh Power Trading Company Ltd, Jabalpur
2. Maharashtra State Electricity Distribution Co. Ltd, Mumbai
3. Gujarat Urja Vikas Nigam Ltd, Baroda
4. Chhattisgarh State Power Trading Co. Ltd, Raipur
5. Electricity Deptt., Government of Goa, Panaji
6. Electricity Deptt., Administration of Daman & Diu, Daman
7. Electricity Deptt., Administration of Dadra and Nagar Haveli, Silvassa

..**Respondents**

The following were present

1. Shri. V.K.Padha, NTPC
2. Shri Ratnesh, NTPC
3. Shri Manoj Saxena, NTPC

4. Shri S.K.Sharma, NTPC
5. Shri A.S.Pandey, NTPC
6. Shri S.Dheman, NTPC
7. Shri Ajay Garg, NTPC
8. Shri S.D.Jha, NTPC
9. Ms. Alka Saigal, NTPC
10. Shri Dipak Srivastava, MPPTCL
11. Shri R.K.Mishra, CSPDCL

ORDER
(DATE OF HEARING 13.10.2009)

Petition No. 63/2009 has been filed by the petitioner, NTPC, for approval of tariff of Unit-IV (500 MW) for the period 20.6.2008 to 31.12.2008 and Unit-IV & V (2 x 500 MW) (Combined) for the period 1.1.2009 to 31.3.2009 in respect of Sipat Super Thermal Power Station, Stage-II (hereinafter referred to as "the generating station"), based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, (hereinafter referred to as "the 2004 regulations").

2. Subsequently, the petitioner filed Petition No. 140/2009 for determination of impact of additional capital expenditure incurred during the period from 1.1.2009 to 31.3.2009 on the fixed charges in the above generating station. During the course of hearing of Petition No. 140/2009, it was decided to club both the petitions.

3. Reply to the petition has been filed by respondent No 1 and 4. the submissions in these replies are being considered in the respective paragraphs.

4. The details of the tariff claimed by the petitioner are as under:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Depreciation	8633	14110
Interest on Loan	11809	19326
Return on Equity	10328	16821
Advance against Depreciation	8143	14551
Interest on Working Capital	2162	3969
O&M Expenses	5475	10950
Total	46550	79727

5. Details of the interest on working capital claimed by the petitioner are as under:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Spares	2459	3976
Oil Stock	344	751
O&M Expenses	456	913
Receivables-2 months	11697	21310
Coal Stock	2696	5453
Total Working Capital	17652	32402
Total Interest on Working Capital	2162	3969
Rate of Interest	12.25%	12.25%

6. In addition, the petitioner has claimed energy charges @ 72.91 paise/kWh for the period 20.6.2008 to 31.12.2008 and @ 74.25 paise/kWh from 1.1.2009 onwards. The energy charges claimed are subject to adjustment for fuel price.

7. The investment approval for the generating station at IDBI appraised current cost of Rs.4039.67 Crores at 2nd Qtr. of 2003 price level was accorded 251st meeting of the Board of Directors of the petitioner held on 25.11.2003.

CAPITAL COST

8. Regulation 17 of the 2004 regulations provides as under:

"Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the date of commercial operation of the generating station and shall include capitalized initial spares subject to following ceiling norms as a percentage of the original project cost as on the cut off date:

(i) Coal based/lignite-fired generating stations - 2.5%

(ii) Gas Turbine/Combined cycle generating stations - 4.0%

Provided that where the power purchase agreement entered into between the generating company and the beneficiaries provides a ceiling of actual expenditure, the capital expenditure shall not exceed such ceiling for determination of tariff.

Provided further that in case of the existing generating stations, the capital cost admitted by the Commission prior to 1.4.2004 shall form the basis for determination of tariff."

9. The petitioner has considered the capital expenditure, (Gross Block) of Rs. 245915 lakh (including Notional IDC of Rs. 498 lakh) as on 20.6.2008 which is the date of commercial operation of unit-IV. This also includes Rs.44953.36 lakh relating to assets common to both the stages, but capitalised with unit-IV. Included in above capital cost is IDC of Rs.1750 lakh capitalised with unit-IV in respect of assets common to both the stages. The petitioner has considered capital cost of Rs. 397565 Lakh (including FERV amounting to Rs. 6125 Lakh, transferred from Profit & Loss Account and Notional IDC of Rs. 995 Lakh as on 1.1.2009, which is the date of commercial operation of unit-V and thereby the date of commercial operation of the station.

10. However, as per the audited books of accounts of the petitioner, the amount of Gross Block as on 20.6.2008 and 1.1.2009 is Rs. 245417 Lakh and Rs. 390445 Lakh, respectively. All calculations in the petition are with reference to above Capital cost i.e. including the aforesaid FERV and notional

IDC). Included in the above Capital cost are liabilities on accrual basis and IDC on FIFO method of loan repayment followed by the petitioner as detailed below:

(Rs. in Lakh)

	20.6.2008	1.1.2009
Gross Block as per audited accounts	245417.00	390446.00
FERV Transferred from P&L A/c	0.00	6125.39
Notional IDC Capitalised	498.00	995.00
Capital Cost considered by Petitioner for the purpose of Tariff	245915.00	397566.39
Liabilities included in above	19508.59	21558.98
IDC+FC included in above	23202.07	43334.95

11. First respondent viz. MPPTCL has pointed out that unit-IV and unit-V, were required to be declared under commercial operation on 15.6.2006 and 15.12.2006, respectively. Against the above, unit-IV was declared under commercial operation on 20.6.2008 which amounts to delay of 24 months 5 days. In the case of unit-V, which was declared under commercial operation on 1.1.2009 the delay is 24 months 16 days. In view of the above, the first respondent has urged that IDC for delayed period should be borne by the petitioner. It has also been pointed out that the above delay has deprived the beneficiaries of the power form the generating station at cheaper rate and the beneficiaries were required to purchase power at higher rate to meet out the demand.

12. In response to the above objection, the petitioner has clarified that the investment approval for this project was cleared by its Board of Directors on 25.11.2003. The project was appraised by IDBI, who in its report had indicated that unit IV was to be synchronized within 42 month of main plant

order and unit V within 48 months. The petitioner has synchronized unit IV on 30.5.2007 approximately one month ahead of schedule. However, commercial operatrion of unit IV was achieved on 20.6.2008 because of reasons beyond the control of the petitioner. It has been pointed out that the Govt. of Chhatisgarh had allocated 120 MCM water in 1997 for the project and cancelled the same in 2007. It was however, restored in April, 2008 after the intervention of PMO, apex decision making administrative body. Also there was serious law and order problem which lead to stoppage of works for three months at site. Inspite of all these constrains the unit V was synchronized on 13.8.2008 and declared under commercial operation on 1.1.2009. In view of these reasons it has been contended that delay was not attributable to the petitioner.

13. Fact of the case as available indicates that the delay was due to reasons beyond the control of the petitioner and as such any cost cutting on this count may not be justified. Further, other objections raised by MPPTCL such as exclusion of un-discharged liability and treatment of FERV have been dealt with as per the provisions of the 2004 regulations.

14. The Commission has been consistently following the principle that for the purpose of tariff determination, capital expenditure actually incurred shall be taken into account, excluding the liabilities. As regards the computation of IDC, the 2004 regulations does not provide for considering notional IDC. Further in all tariff orders for 2004-09 period FIFO method of repayment adopted by the petitioner had been rejected by the commission. The reason for rejection being “FIFO method may result into higher IDC in projects and

higher AAD in existing stations". Moreover, average method when aggregated to corporate level ensures servicing of entire loan.

15. In phasing of funds for most of the quarters debt utilization is within limits of 70% except in three quarters where in debt utilized is marginally more but on overall yearly basis it is within limits. Accordingly IDC has been worked out with average method of loan repayment. No adjustment is made on quarter wise funding. The Capital cost on exclusion of liabilities as per practice of the commission, exclusion of notional IDC and subsequently corrected for reduction in IDC due to change of loan repayment method from FIFO to average is as detailed below:

(Rs. in Lakh)

	20.6.2008	1.1.2009
Capital Cost After removal of liabilities	226406.41	376007.41
Removal of Notional IDC	498.00	995.00
Reduction in IDC due to Average method of repayment	183.07	409.09
Admissible Capital cost actually incurred up to date of commercial operation for the purpose of tariff	225725.34	374603.32

16. The above mentioned capital cost includes IDC amounting to Rs.1750 lakh (capitalised with unit-IV) in respect of assets common to both Stage-II & Stage-I. Representatives of the petitioner have clarified that this IDC pertaining to common package of both Stage-II & Stage-I have been funded out of loan package of Stage-I, which is different from loan package of Stage-II. It has further been clarified that there is no specific loan against it, as it has been funded out of common loan basket of Stage-I. It has been submitted that

the loan details would be made available while filing petition for tariff determination of Stage-I.

17. In the light of above facts Rs.1750 lakh has been considered for this tariff petition and the same amount will be deducted out of the total admissible IDC pertaining to Stage-I when the petitioner will submit petition for tariff determination of Stage-I.

18. Initial Spares: The Capital cost as above is inclusive of initial spares amounting to Rs.709 Lakh which is within the permissible limit of 2.5% of capital cost as prescribed by the 2004 regulations, and the same has been considered for working out the tariff for the period 2008-09.

ADDITIONAL CAPITAL EXPENDITURE

19. As stated above, during the course of hearing of Petition No. 63/2009, it was decided to club with it Petition No. 140/2009 filed by the petitioner for determination of impact of additional capital expenditure incurred during the period from 1.1.2009 to 31.3.2009 on the fixed charges in the above generating station. Details of the additional capital expenditure claimed by the petitioner is as under:

(Rs. in Lakh)

Particulars	1.1.2009 to 31.3.2009
Closing Gross Block	425710
Less: Opening Gross Block	407855
ACE as per books of accounts	**17855**
Less: Exclusions	11987
Net Additional capital expenditure claimed	**5868**

20. Above stated claim of the petitioner towards additional capital expenditure includes Rs.905.84 lakh pertaining to common package of both Stage-II & Stage-I) which has been capitalised with Stage-II out of opening CWIP in respect of Stage-I. Corresponding IDC included in it is Rs.54.81 Lakh. As already stated in para 16 above, the said IDC of Rs.54.81 Lakh has been considered in the present calculations of tariff and the same amount will be deducted along with Rs.1750 lakh as stated above (out of the total admissible IDC pertaining to Stage-I) when the petitioner will submit petition for tariff determination of Stage-I.

i) Exclusions sought by the petitioner are as under:

(Rs. in Lakh)

Particulars	1.1.2009 to 31.3.2009
Minor assets (de-capitalised in books)	-6.69
FERV(Capitalized in books)	11993.82
Total exclusions claimed	**11987.14**

21. As regards de-capitalisation of minor assets, it is seen that these minor assets have been allowed for the purpose of capitalisation in the tariff. Accordingly, we are not inclined to allow its exclusion as they are not in service. As regards FERV, exclusion is being allowed as FERV is being billed directly to the beneficiaries.

22. Category-wise breakup of additional capital expenditure claimed by the petitioner is as under:

(Rs. In lakh)

Particulars	Category	1.1.2009 to 31.3.2009
Works deferred for execution	18(1)(ii)	5383.82
Procurement of initial capital spares in the original scope of work, subject to ceiling specified in regulation 17	18(1)(iii)	409.74
Liabilities to meet award of arbitration or for compliance of the order or decree of a court	18(1)(iv)	73.98
Total		**5867.54**

23. The petitioner has submitted that all assets claimed under category 18(1) (ii) are within original approved project cost . As required by proviso to regulation 18(1) of the 2004 regulation, the petitioner, along with the main Petition No. 63/2009, has submitted a list of deferred works for execution amounting to Rs. 15069 lakh, excluding capital spares. Out of this, assets/works amounting to Rs.5383.82 lakh have been capitalised by the petitioner under this category. As the claim is within the provisions of the 2004 regulations, we allow the same.

24. Under category 18(1) (iii), the petitioner has claimed procurement of capital spares amounting to Rs.409.74 lakh. The same is within the permissible limit of 2.5% of the original project cost. Therefore, we allow the same.

25. Under category 18(1) (iv), the petitioner has claimed Rs.73.98 Lakh on account of additional compensation provision for land in compliance of judgment by court. As the expenditure has not yet been actually incurred, we do not allow the same.

26. In the light of the above, the following additional capital expenditure is allowed for the purpose of tariff:

(Rs. In Lakh)

Particulars	Category	1.1.2009 to 31.3.2009
Works deferred for execution	18(1)(ii)	5383.82
Procurement of initial capital spares in the original scope of work, subject to ceiling specified in regulation 17	18(1)(iii)	409.74
Liabilities to meet award of arbitration or for compliance of the order or decree of a court	18(1)(iv)	0.00
Total before adjustment of exclusions not allowed		5793.56
Add: Exclusions not allowed		-6.69
Less: Liabilities included above		354.47
Additional capital expenditure allowed		5432.40

27. The petitioner vide affidavit dated 26.8.2009 submitted that amount of un-discharged liabilities included in the claim for additional capital expenditure is Rs.428.45 lakh, which includes liabilities amounting to Rs.73.98 lakh, on account of additional compensation provision for land in compliance of judgment by court. As this additional compensation of Rs.73.98 lakh has been specifically disallowed above, so balance liability of Rs.354.47 lakh has been deducted from the additional capital expenditure as shown above.

28. Thus, the revised capital base as on 31.3.2009 after taking into account Rs.5432.40 lakh towards additional capital expenditure allowed amounts to Rs.380035.72 lakh.

DEBT – EQUITY RATIO

29. Regulation 20 of the 2004 regulations provides as under:

(1) In case of the existing project, 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.

(2) <u>In case of the generating stations for which investment approval was accorded prior to 1.4.2004 and which is likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt-equity in the ratio of 70:30 shall be considered:</u>

Provided that where deployment of equity is less than 30% the actual equity deployed shall be considered for the purpose of determination of tariff.

Provided further that the Commission may in appropriate case consider equity higher than 30% for the purpose of determination of tariff, where the generating company is able to establish to the satisfaction of the Commission that deployment of equity more than 30% was in the interest of general public;

(3) In case of generating stations for which investment approval is accorded on or after 1.4.2004, debt equity in the ration of 70:30 shall be considered for the purpose of determination of tariff.

Provided that where deployment of equity is less than 30% the actual equity deployed shall be considered for the purpose of determination of tariff.

(4) The debt and equity amount arrived at in accordance with above sub-clause (1),(2) or (3), as the case may be, shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation."

30. The petitioner has considered normative debt equity ratio of 70:30 in both the petitions viz. Petition No. 63/2009 – main tariff petition and Petition No. 140/2009 – additional capital expenditure petition. As the same is in accordance with the 2004 regulations as amended on 3.9.2004, the debt equity ratio of 70:30 has been considered for computation of tariff for the tariff period 2004-09.

RETURN ON EQUITY

31. Clause (iii) of regulation 21 of the 2004 regulations stipulates that return on equity shall be computed on the equity base determined in accordance with regulation 20@ 14% per annum. Accordingly, the return on equity has been worked out @ 14% per annum on the normative equity as on the date of commercial operation of each unit. However, taking into account the additional capital expenditure claimed in Petition No. 140/2009, for the purpose of computing ROE for the period 1.1.2009 to 31.3.2009, average equity during the period has been considered.

32. Return on equity in respect of the generating station has been calculated as under:

(Rs. In lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Return on Equity		
Equity (Normative)	67,717.60	112,381.00
Addition due to Additional Capitalisation	-	1,629.72
Addition due to FERV	-	
Equity (Normative) – Closing	67,717.60	114,010.72
Average Equity	67,717.60	113,195.86
Return on Equity	9,480.46	15,847.42

TARGET AVAILABILITY

33. Target availability of plant considered for the period of tariff from 20.6.2008 to 31.3.2009 is 80%.

INTEREST ON LOAN

34. Clause (i) of regulation 21of the 2004 regulations provides as under:

(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 up to 31.3.2004. The repayment for the period 2004-09 shall be worked out on a normative basis.*

(c) *Generating Company shall make every effort to swap the loan as long as it results in net benefit to the beneficiaries. 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 pendency of 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 from 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.

35. Based on the above provisions, interest on loan has been calculated as under:

(a) In respect of the generating station the gross normative loan corresponding to 70% of admissible capital cost works out to Rs. 158007.74 lakh as on 20.6.2008, and Rs. 262222.33 lakh as on 1.1.2009.

(b) Since the tariff of the station is being fixed for the first time net loan opening as on 20.6.2008 is same as gross loan, Cumulative repayment of loan up to previous year being nil.

(c) Petitioner has considered FIFO method of repayment in case of following loans viz. Allahabad-II, Canara, SBI-III, SBT-IV, SBP, BOM-II, CBI-II and CBI-III. As stated above since application of FIFO method may result in higher Advance Against Depreciation 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 per the practice adopted by the Commission, taking into consideration terms and conditions of the loan drawl as per form-8 as furnished by the petitioner and subsequent information and clarification called for and submitted by the petitioner.

(d) As approved by the Commission rate of interest considered in calculation in case of all loans is on annual rest basis.

(e) Loan drawn up to date of commercial operation of the station and thereafter for funding additional capital expenditure claim, have been taken into consideration.

(f) Rate of interest as prevailing has been used for calculations. Any variation on account of change in rates will be settled mutually.

(g) Actual repayment of actual loan based on above corrections is used to calculate normative repayment of Loan. Normative repayment is worked out as per formula below.

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

(h) As per methodology approved by the Commission for 2004-09 tariff period normative repayment of loan or depreciation whichever is higher was to be treated as repayment during the years. Hon'ble

Appellate Tribunal Electricity ("the Appellate Tribunal")for Electricity in its judgment in various appeals filed by the petitioner for 2004-09 tariff period has held that depreciation cannot be linked with repayment of loan and loan repayment to be calculated on normative basis only. An appeal by the Commission is pending before the Hon'ble Supreme Court. In the above appeal, the petitioner has agreed not to press for the implementation of the judgment of the Appellate Tribunal. Accordingly, it has been decided not to apply the above decision of the Appellate Tribunal in other cases for tariff determination.

(i) The weighted average rate of interest calculated on actual loan and actual repayment as considered above has been applied on normative loan for calculating interest on loan.

(j) Financial charges incurred towards loans by the petitioner have been allowed and taken into consideration for calculation for interest on loan. In this station it is 0.03% for bonds (Surveillance fee) and 20.91%/21.115% withholding tax for Euro Bond.

(k) The petitioner has considered drawl (out of CBI – III and SBI – IV) during the period 20.6.2008 to 31.12.2008, as gross opening loan instead of showing them as additions during the year for the purpose of calculating weighted average rate of interest, the same has been rectified in these calculations.

(l) Some of loans carry floating rate of interest viz. SBP, CBI-III, SBI-III and SBI-IV. Interest rate prevailing on the date of commercial operation has been considered for interest computation.

(m) Average net loan is calculated as average of opening and closing as was being done for all earlier tariff orders.

36. Based on the above, interest on loan has been calculated as per the following details:

(Rs. In lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Interest on Loan		
Gross Loan (Normative)	158,007.74	262,222.33
Cumulative Repayment upto Previous Year	-	7,899.91
Net Loan-Opening	158,007.74	254,322.42
Addition due to Additional Capitalisation	-	3,802.68
Repayment during the year	7,899.91	3,275.28
Net Loan-Closing	150,107.84	254,849.82
Average Loan	154,057.79	254,586.12
Weighted Average Rate of Interest on Loan	6.9620%	7.0595%
Interest (Annualised)	10,725.49	17,972.54

DEPRECIATION

37. Sub-clause (a) of clause (ii) of regulation 21 of the 2004 regulations provide the following methodology for computation of depreciation:

(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.*

38. The petitioner has calculated weighted average rate of depreciation as 3.51076% on 20.6.2008 and 3.52315% as on 1.1.2009. These figures have been arrived at by considering full value of assets i.e. including liabilities. Additional information was called from the petitioner regarding asset wise un-discharged liabilities, which the petitioner submitted vide letter dt.15.9.2009. Based on these details, Accordingly, depreciation rates of 3.4550% as on 20.6.2008 and 3.5204% as on 1.1.2009, have been calculated based on gross value of assets after excluding un-discharged liabilities, as furnished by the petitioner at applicable rates as per Appendix-II and applied on pro rata basis on admissible capital cost.

39. Details of depreciation calculated are as under:

(Rs. in lakh)

	20.6.2008-31.12.2008	**1.1.2009-31.3.2009**
Deprecation value including amortisation of lease land in	198,834.12	335,268.89
25 yrs.		
Remaining Depreciable Value	198,834.12	327,368.98
Depreciation	4,166.54	3,275.28
Depreciation Annualized	7,798.92	13,283.09

ADVANCE AGAINST DEPRECIATION

40. For working out Advance Against Depreciation, 1/10th of the loan has been worked out with reference to notional gross loan, while repayment of loan during the year has been worked out as mentioned in para 35(h) above.

41. Details of Advance Against Depreciation calculated are as under:

(Rs. in lakh)

Advance against Depreciation	20.06.2008-31.12.2008	1.1.2009-31.3.2009
1/10th of Gross Loan(s)	15,800.77	26,222.23
Repayment of the Loan	7,899.91	3,275.28
Minimum of the above	7,899.91	3,275.28
Depreciation during the year	4,166.54	3,275.28
(A) Difference	3,733.36	-
Cumulative Repayment of the Loan	7,899.91	11,175.19
Cumulative Depreciation	4,166.54	11,175.19
(B) Difference	3,733.36	-
Advance against Depreciation Minimum of (A) and (B)	3,733.36	-
AAD Annulized	6,988.09	-

O& M EXPENSES

42. The petitioner has claimed the following towards O& M Expense:

(Rs. in Lakh)

Year/Period	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
O&M Expenses	5475	10950

43. O&M Expenses as claimed above has been allowed being in conformity with the regulations.

44. 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.

45. 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

46. 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:

(a) 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: Cost of coal for 1 ½ months consumption on the basis of operational parameters and weighted average price of coal has be calculated as per the following details:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Weighted Avg. GCV of Coal (kCal/kg)	3403.02	3414.21
Heat Contribution by Coal (kCal/kwh)	2429.4	2430
Specific Coal Consumption (kg/kwh)	0.71	0.71
Annual Requirement of Coal (MT)	2501489.15	4987812.70
Coal Stock (1.1/2 months) (MT)	312686	623477
Weighted Avg. Price of Coal (Rs./MT)	872.20	871.41
Coal Stock-1.1/2 month- (Rs.in Lakhs)	2727.25	5433.04

(b) Cost of secondary fuel oil for two months corresponding to the target availability: The details of the cost of secondary fuel oil calculated in respect of the generating station are as under:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Weighted Avg. GCV of Oil (kCal/Lit.)	10300	10000
Heat Contribution by Oil (kCal/kwh)	20.60	20
Annual Requirement of Oil (ltrs)	7008000	14016000
Oil Stock(2 months) (KL)	1168.00	2336.00
Weighted Avg. Price of Oil (Rs./KL)	28369.92	29335.37
Oil Stock- 2 months- (Rs. in Lakhs)	331.36	685.27

(c) Operation and Maintenance expenses for one month: 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) Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation: Accordingly, the spare requirement has been worked out on admissible capital cost as on date of commercial operation less cost of initial spares as per the following details:

(Rs. in lakh)

		20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Gross Block as on 01.01.2009		225725	374603
Initial Spares included in above		709	709
Effective Gross Block for Maint.Spares		225016	373894
Maintenance Spares @ % of Capital cost	1%		
Escalation	6.00%		
Period during the Year		0.53	0.25
Maintenance Spares		2250.16	3738.94

(e) Receivables equivalent to two months of fixed and variable charges for sale of electricity calculated on the target availability: the same has been calculated as per the following details:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Coal (Rs/kwh)	0.6731	0.6705
Oil (Rs/kwh)	0.0613	0.0634
Rs./kwh	0.7345	0.7339
Variable Charges per year	23806	47576
Receivables		
Variable Charges -2 months	3968	7929
Fixed Charges - 2 months	7088	10267
Total	11056	18196

47. 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.

48. Based on the above, interest on working capital has been calculated as per the following details:

(Rs. in lakh)

	20.6.2008 to 31.12.2008	1.1.2009 to 31.3.2009
Coal Stock- 1.1/2 months	2727.25	5433.04
Oil stock -2 months	331.36	685.27
O & M expenses	456.25	912.50
Spares	2250.16	3738.94
Recievables	11055.78	18196.22
Total Working Capital	16820.80	28965.98
Rate of Interest	12.25%	12.25%
Total Interest on Working capital	2061	3548

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 20.6.2008 to 31.3.2009 allowed in this order are summed up as below:

(Rs.in Lakh)

S.No.	Particulars	20.06.08 to 31.12.08	01.01.09 to 31.03.09
1	Depreciation	7799	13283
2	Interest on Loan	10725	17973
3	Return on Equity	9480	15847
4	Advance against Depreciation	6988	0
5	Interest on Working Capital	2061	3548
6	O&M Expenses	5475	10950
	Total	42529	61601

Note : All the above components have been calculated on annualised basis.

ENERGY/VARIABLE CHARGES

50. The petitioner has adopted following operational norms for 500 MW units as per the 2004 regulations for calculation of rate of energy charge:

Specific Oil consumption	2 ml.kWh
Auxiliary consumption	7.5%
Heat Rate	2450 Kcal/kWh
Transit and handling loses	0.8%

51. The norms as considered by the petitioner are in line with the 2004 regulations except the norm for transit and handling charges which ought to have been 0.3% in lieu of the 0.8 % claimed by the petitioner.

52. The petitioner has claimed the rate of energy charge of 72.91 paise/kWh for period 20.6.2008 to 31.12.2008 and 74.25 pasie/kWh from 1.1.2009 based on the above operational parameters and following weighted average price and GCV of coal and secondary fuel oils (LDO+HFO) produced during preceding three months.

	20.6.2008 to 31.12.2008 for unit IV	From 1.1.2009 for units IV and V
GCV of Oil (LDO+HFO)	10300 k Cal/L	10133.33 k Cal/L
GCV of coal	3460 kCal/Kg	3418.48 kCal/Kg
Weighted average nprice f Oil (as procured basis) (LDO+HFO)	29451.74 Rs./KL	31157.63 Rs./KL
Price of coal (as procured basis)	876.60 Rs./MT	875.80 Rs./MT

53. The HSD/LDO is used only during cold boiler start up. Hot start ups and flame stability during low load conditions are taken care by HFO, which is the main secondary fuel oil. Since HFO is the main secondary fuel oil, it should only be considered for the consumption of working capital requirements and base rate of energy charge. Therefore, HFO is being allowed as secondary fuel oil which is the main secondary fuel oil for the purpose of base rate of energy charge.

54. Based on the above deliberations, base rate of energy charge works out to 73.45 paise/kWh for the period 20.6.2008 to 31.12.2008 and 73.39 paise/kWh from 1.1.2009 onwards as per the following computations based on fuel prices and GCVs as adopted by us:

	Unit	20.6.2008 to 31.12.2008 for unit IV	From 1.1.2009 for units IV and V
Capacity	MW	500	1000
Gross Station Hear Rate	kCal/kWh	2450	2450
Specific Fuel Oil consumption	Ml/kWh	2.00	2.00
Auxiliary energy consumption	%	7.5	7.5
Weighted average GCV of Oil	kCal/l	10300	10000
Weighted average GCV of coal	kCal/Kg	3403.02	3414.21
Weighted average price Oil (HFO only)	Rs./KL	28369.92	29335.37
Weighted average price of coal	Rs./MT	872.20	871.41
Rate of energy charge from secondary fuel	Paise/kWh	5.67	5.87
Heat contributed from HFO	kCal/kWh	20.60	20.0
Heat contributed from coal	kCal/kWh	2429.40	2430.0
Specific coal consumption	kg/kWh	0.71	0.71
Rate of energy charge from coal	Paise/kWh	62.27	62.02
Rate of energy charge ex-bus per kWh sent	Paise/kWh	73.45	73.39

55. It is also clarified that the FPA clause provided in the 2004 regulations will take care of the cost of HSD/LDO used in the station on “as consumed basis” on month to month basis. As such, the petitioner is not being denied the reimbursement on account of fuel charges whenever used.

56. The base rate of energy shall be subject to fuel price adjustment as per the following formula:

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,

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

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

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

57. 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.

58. 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.

59. This order disposes of petitions No. 63/2009 and 140/2009

Sd/=	Sd/=	Sd/=
(V.S. Verma)	**(S. Jayaraman)**	**(R.Krishnamoorthy)**
Member	**Member**	**Member**

New Delhi, dated the 10th December 2009

Summary Sheet

Company : NTPC Ltd.

Power Station : Sipat STPS, Stage – II

Petition No. : 63/2009 along with 140/2009

Tariff Setting Period : 2004-09

				(Rs. in lakh)
A	**(1) Capital Cost of the Project as on 1.1.2009 date of commercial operation**			**374603**
	(2) Means of Financing Capital Cost as on 1.1.2009			
	Debt (Notional)		262222	
	Equity (Notional)		112381	
	Total		**374603**	
	(3) Normative Loan o/s as on 1.1.2009			**254322**
	Gross Loan as on 1.1.2009			
	Less: Repayment up to 1.1.2009			
	Normative Loan o/s as on 1.1.2009			
B	**(1) ACE incurred during the period 1.1.2009 to 31.3.2009**			**5432**
	(2) Means of Financing additional capital expenditure			
	Debt (Notional)		3803	
	Equity (Notional)		1630	
	Total		**5432**	
C	**(1) Total Capital Cost of the Project as on 31.3.2009**			**380036**
	(2) Normative Loan o/s as on 31.3.2009			**254850**
	Gross Loan as on 1.1.2009			
	Add: Addition to loan due to Additional capital expenditure			
			266025	
	Less: Repayment up to 1.1.2009			
	Less: Repayment during 1.1.2009 to 31.3.2009			
	Normative Loan o/s as on 31.3.2009 (to be repaid beyond 31.3.2009)			
D	**Total Depreciation recovered up to 31.3.2009**			**11175**
		AAD	**Total**	
	Recovered up to 1.1.2009	3733	7900	
	From 1.1.2009 to 31.3.2009	0	3275	
	Total			
	Balance Depreciation to be recovered beyond 31.03.2009			**324094**
	Capital cost as on 1.1.2009			
	Add: ACE incurred during 1.1.2009 to 31.3.2009			
	Capital cost as on 31.3.2009			
	Average Capital Cost as on 31.3.2009			
	Less: Cost of Freehold Land			
	90% of the Capital Cost as above			
	Cumulative depreciation recovered up to 31.3.2009			
	Balance Depreciation to be recovered beyond 31.3.2009			