

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram:

- 1. Shri Bhanu Bhushan, Member**
- 2. Shri R.Krishnamoorthy, Member**

Petition No. 155/2007

In the matter of

Approval of tariff in respect of Vindhyachal STPS Stage-III (1000 MW) for the period from 1.12.2006 to 31.3.2009.

And in the matter of

NTPC Ltd., New Delhi.

.....**Petitioner**

Vs

1. Madhya Pradesh Power Trading Co. Ltd., Jabalpur
2. Maharashtra State Electricity Distribution Co. Ltd, Mumbai
3. Gujarat Urja Vikas Nigam Ltd., Vadodara
4. Chhattisgarh State Electricity Board, Raipur
5. Electricity Department, Govt. of Goa, Goa
6. Electricity Department, Admn. of Daman & Diu, Daman
7. Electricity Department, Admn. of Dadra & Nagar Haveli, Silvassa

.....**Respondents**

The following were present

1. Shri S.N. Goel, NTPC
2. Shri S.K. Samui, NTPC
3. Shri A.S. Pandey, NTPC
4. Shri Vivake Kumar, NTPC
5. Shri S.K. Sharma, NTPC
6. Shri D. Kar, NTPC
7. Shri D.D. Khandelwal, MPPTCL

ORDER
(DATE OF HEARING: 12.2.2008)

This petition has been filed by the petitioner, a generating company owned or controlled by the Central Government, for approval of tariff of Vindhyachal STPS Stage-III (1000 MW) (hereinafter referred to as “the generating station”), for the period 1.12.2006 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 has two units with a capacity of 500 MW each. The date of commercial operation of different units of the generating station is as follows:

	Actual date of commercial operation	Scheduled date of commercial operation
Unit-I	1.12.2006	24.2.2007
Unit-II	15.7.2007	24.8.2007

3. The tariff for infirm power from Unit-I of the generating station was approved by the Commission by its order dated 20.7.2006 in Petition No. 29/2006, from the date of synchronization i.e 27.7.2006. Further, by order dated 23.1.2007 in I.A. 81/2006 in Petition No.29/2006, the Commission approved the tariff for infirm power from Unit-II of the generating station from the date of synchronization of the unit i.e.9.3.2007.

4. The Commission by its order dated 29.12.2006 in Petition No.115/2006 approved the provisional tariff for Unit-I of the generating station. By order dated 13.8.2007 in Petition No. 83/2007, the Commission also approved the provisional tariff and the energy charges from the date of commercial operation of the generating station, subject to adjustments in final tariff, as under:

		2007-08	2008-09
Annual Fixed Charges	(Rs in lakh)	533.49	530.95
Energy charge ex-bus	(paise/kWh)	95.47	

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

	1.12.2006 to 31.3.2007*	1.4.2007 to 14.7.2007#	15.7.2007 to 31.3.2008	2008-09
Capital cost considered for AFC*	187485	188746	338082	338082
Depreciation	6913	6960	12347	12347
Interest on Loan	10180	10230	18093	16336
Return on Equity	7874	7927	14199	14199
Advance against Depreciation	4523	0	5146	1271
Interest on Working Capital	1783	1727	4067	3983
O & M Expenses	5060	5260	10520	10950
Total)	36364	32077	64372	59087

*Average of gross block as on 1.12.06 and 31.3.07 # Average of gross block as on 1.4.07 and 14.7.07.

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

(Rs in lakh)

	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Spares	1507	2793	2960	3138
Oil Stock	448	501	502	501
O&M Expenses	405	843	877	913
Receivables-2 months	9473	17800	19275	18997
Coal Stock	3277	6875	6894	6875
Total Working Capital	15109	28812	30508	30423
Rate of Interest	10.25%	10.25%	10.25%	10.25%
Total Interest on Working Capital	1549	2953	3127	3118

7. In addition, the petitioner has claimed the rate of energy charge of 94.92 paise/kWh for period from 1.12.2006 to 14.7.2007 and 94.71paise/kWh from 15.7.2007 onwards, subject to fuel price variation.

8. Respondents No.1, 3 and 4 have filed their replies to the petition. The petitioner has published notices in the newspapers in accordance with the procedure specified by the Commission. No objections or suggestions have been received in response to these notices.

9. During the hearing of Petition No 83/2007(determination of provisional tariff), the respondent No. 1 submitted that the Commission should specify the procedure for calculating expected revenue. The Commission by its order dated 13.8.2007 while awarding provisional tariff observed as follows:

“10. We heard the representatives of the parties present at the hearing. The respondent MPPTCL raised certain issues regarding the capital cost of the generating station. The question of capital cost shall be gone into in accordance with law at the time of final determination of tariff. MPPTCL in its reply has also stated that the Commission should specify the procedure for calculating expected revenue in terms of section 62 (5) read with section 178 of the Electricity Act, 2003. This aspect is separately under consideration of the Commission and may be gone into at the time of approval of final tariff for the generating station. Without going to the details of capital cost at this stage, we allow the following provisional Annual Fixed Charges, which represent 90% of the Annual Fixed Charges claimed by the petitioner and are subject to adjustment after the tariff is finally determined by the Commission.”

10. The respondent No. 1 and 4 in their replies dated 6.2.2008 and 26.2.2008 have again reiterated that in terms of the Act as provided in section 62(5), it is necessary for the Commission to first prescribe the procedure for calculating the expected revenue from tariff and then call for information from the petitioner before deciding the final tariff.

11. The Commission in exercise of its powers conferred under section 178 of the Act has notified the 2004 regulations laying down norms and conditions for determination of tariff. Also the procedure for filing application and documents by the generating companies has been laid down in the Conduct of Business Regulations, 1999 of the Commission. The Commission after providing sufficient opportunity to the parties in the hearing determines the tariff of the generating station. The same methodology has been adopted by the Commission in determination of tariff of the petitioner. In our view, the notification of terms and conditions of tariff adequately meets the requirement of section 62(5) read with section 178 of the Act. However, the Commission has noted the contentions of the respondents and the same will be addressed at the time of framing of the

tariff regulations commencing from 1.4.2009. We now proceed to determine the tariff of the generating station of the petitioner, as per the 2004 regulations.

Capital Cost

12. Regulation 17 of the 2004 regulations relating to the capital cost provide as under:

*“17. **Capital Cost:** 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 capitalised 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 any person intending to establish, operate and maintain a generating station may make an application before the Commission for 'in principle' acceptance of the project capital cost and financing plan before taking up a project through a petition in accordance with the procedure specified in the Central Electricity Regulatory Commission (Procedure for making application for determination of tariff, publication of the application and other related matters) Regulations, 2004, as applicable from time to time. The petition shall contain information regarding salient features of the project including capacity, location, site specific features, fuel, beneficiaries, break up of capital cost estimates, financial package, schedule of commissioning, reference price level, estimated completion cost including foreign exchange component, if any, consent of beneficiary licensees to whom the electricity is proposed to be sold etc.

Provided further that where the Commission has given 'in principle' acceptance to the estimates of project capital cost and financing plan, the same shall be the guiding factor for applying prudence check on the actual capital expenditure:

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.

Note

Scrutiny of the project cost estimates by the Commission shall be limited to the reasonableness of the capital cost, financing plan, interest during construction, use of efficient technology, and such other matters for determination of tariff”.

13. The capital cost as per the techno-economic clearance of the Central Electricity Authority (CEA) accorded vide its letter dated 27.8.2002 was Rs.412500 lakh (Rs.191387 lakh+ US\$ 465.5 million) including IDC and FC of Rs.55938 lakh (Rs. 27142 lakh+ US\$ 60.623 million), at the exchange rate of Rs.47.50/US\$ (4th qtr of 2001price level). The investment proposal of the generating station was approved by the Board of Directors of the petitioner company on 24.2.2003 at the cost of Rs.412500 lakh.

14. The petitioner has claimed a capital cost of Rs.338081 lakh as on date of commercial operation of the generating station i.e 15.7.2007. The unit-wise break-up of the capital cost as per auditors certificate dated 12.9.2007 is as under:

	(Rs.in lakh)	
	As on date of commercial operation of Unit-I (1.12.2006)	As on date of commercial operation of generating station (15.7.2007)
Capital cost	186481	338081

15. It is observed from the Auditor’s certificate dated 12.9.2007 that there has been some adjustments in the gross block between the generating station and Stage-II of the generating station of the petitioner. The petitioner vide affidavit

dated 1.4.2007 has clarified that the adjustments in gross block is in respect of capital spares and FERV liabilities for Stage-II of the generating station only and no adjustment has been made between Stage-II and Stage-III of the generating station.

16. The project cost of Rs.338081 lakh as on 15.7.2007 is inclusive of IDC and FC of Rs.26190 lakh. In addition, the petitioner has also accounted for capital works in progress amounting to Rs.5368 lakh and works remaining to be executed estimated at Rs.17075 lakh. The completed hard cost works out to Rs.334334 lakh against the CEA approved completed hard cost of Rs.356562 lakh and there is no cost over-run involved in execution of the generating station.

Infirm power

17. The petitioner vide affidavit dated 1.4.2008 has certified that the revenue earned from sale of infirm power in excess of fuel cost in respect of the generating station has been adjusted in the capital cost.

18. The Commission by its order dated 20.7.2006 directed the petitioner as under:

"7. In order to give effect to regulation 19 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, the petitioner should calculate the extra amount charged in tariff over the above the actual cost of fuel used for infirm power generation. Accordingly, the petitioner is directed that a certificate, duly signed by the auditors, certifying the following data shall be submitted at the time of filing of petition for final tariff:

(a) Total quantity and amount spent on purchase of fuel up to the date of commercial operation.

(b) Total quantity of fuel actually consumed up to the date of commercial operation.

(c) Balance quantity of fuel as on the date of commercial operation.

(d) Amount of fuel in stock as on the date of commercial operation (as per (c) above) has not been capitalized on the date of commercial operation

8. In case of more than one type of fuel, information in respect of each type of fuel should be furnished. Such certificate shall be required separately from the respective date of commercial operation of each unit."

19. The respondent No.1, MPPTCL vide affidavit dated 6.2.2008 has submitted that the petitioner shall be directed to furnish details regarding fuel as directed by Commission in its order dated 20.7.2006, before arriving at a capital cost.

20. From the auditor's certificate dated 12.9.2007, it is observed that the total fuel consumed during the synchronization in respect of Unit-I and Unit-II of the generating station was Rs.6365 lakh and Rs. 7189 lakh respectively. From the details submitted in Form 5B, it is further observed that the petitioner has capitalized an amount of Rs.6357 lakh as startup fuel out of the fuel amounting to Rs.13554 lakh consumed and the balance amount has been adjusted in the net revenue from the sale of infirm power.

Initial spares

21. The petitioner in its affidavit dated 1.4.2008 has furnished that the initial spares capitalized as on date of commercial operation of the generating station is Rs.2213 lakh (Rs. 714 lakh on date of commercial operation of Unit-I and Rs.1688 lakh as on date of commercial operation of Unit-II of the generating station). The petitioner has further submitted that against the provision of Rs. 8513 lakh in the admitted capital cost, it had capitalized initial spares amounting to Rs.2213 lakh only up to the date of commercial operation of the generating station and the capital spares of remaining value are under different stages of procurement on account of high lead time due to heavy order book position of the OEMs. As the petitioner is not in a position to procure and capitalise all the spares before the cut-off date, it has craved leave of the Commission to file a separate petition for capitalization of spares after cut-off date.

22. The respondent No.1, MPPTCL, in its affidavit dated 6.02.2008 has submitted that as per provisions contained in the 2004 regulations, no further capitalization of initial spares should be allowed to the petitioner after the date of commercial operation of the generating station. The submission of the respondent No.1 is not tenable as the petitioner is entitled for capitalization of spares under the original scope of work up to the cut-off date, in terms of sub-clause (iii) of clause (1) of Regulation 18 of the 2004 regulations,

23. The Commission vide order dated 13.3.2008 directed the petitioner to furnish the likely completion schedule of deferred works including procurement of

initial spares and the petitioner vide affidavit dated 1.4.2008 has furnished the list of deferred works for execution, including capital spares as on 25.3.2009. It is noticed that most of the deferred works likely to be completed before March, 2009 include procurement of initial spares amounting to Rs.5360 lakh. Some initial spares amounting to Rs.792 lakh have already been procured after the date of commercial operation of the generating station. However, the petitioner has not furnished details of spares which are likely to be capitalized after the cut-off date. In terms of clause (ix) of Regulation 14 of the 2004 regulations, the cut-off date for the generating station is 31.3.2009 and as per sub-clause (iii) of clause (1) of Regulation 18, initial spares can be capitalized up to the cut-off date. The petitioner should take necessary steps to procure the initial spares within the cut-off date, in conformity with the provisions of the 2004 regulations.

24. The petitioner has claimed initial spares amounting to Rs.2213 lakh as part of capital expenditure till the date of commercial operation of the generating station. As per Regulation 17 of the 2004 regulations, the admitted capital expenditure shall include initial spares subject to a ceiling norm of 2.5% (for coal based generating stations) of the original project cost as on the cut off date. The claim of the petitioner is within the allowable limit of 2.5% of the original project cost as on the cut off date i.e. 1.8.2005. Therefore, the petitioner's claim for initial spares is in accordance with 2004 regulations. Accordingly, we allow the amount of Rs.2213 lakh towards cost of initial spares.

25. The Commission vide order dated 13.3.2008 directed the petitioner to furnish the actual cash outflow on the capital assets as on the date of commercial operation of the generating station and the petitioner vide affidavit dated 1.4.2008 has furnished the actual capital expenditure excluding undischarged liability as on the date of commercial operation of the generating station.

26. In view of the foregoing, we proceed to determine the tariff based on the capital expenditure actually incurred by the petitioner and after excluding the outstanding liabilities for which the payments were not made till the date of commercial operation of the generating station. Accordingly, the capital cost considered in our calculations is as under:

	(Rs in lakh)		
	1.12.2006 (COD of Unit-I)	1.4.2007	15.7.2007 (COD of generating station)
Capitalized Gross block as per accounts	186481.08	188488.18	338081.90
Liabilities included in above on annual basis	19358.70	10413.04	23489.82
Capitalized cost actually incurred	167122.38	178075.13	314592.07

27. The above capital cost includes IDC and FC. The petitioner has claimed the following amounts towards interest and FC based on FIFO method of repayment of loan.

	(Rs in lakh)		
	1.12.2006	1.4.2007	15.7.2007
IDC and FC	23180.63	24855.89	26190.13

28. The Commission, in its previous orders has uniformly followed the average method of repayment of loan in stead of FIFO method considered by the petitioner since FIFO method results in higher IDC in on-going under construction project and higher AAD in case of the existing generating stations. Accordingly, for this generating station also, IDC has been worked out with average method of loan repayment.

29. The petitioner has submitted that notwithstanding its claim for FIFO method of repayment, in case average method of loan repayment is adopted, then no repayment in the normative loan and notional IDC prior to the date of commercial operation is to be considered, in order to ensure complete servicing of normative loan.

30. In the FIFO method of allocation followed by the petitioner, the terms of loan gets vitiated. Moreover, the average method adopted is in accordance with the contracted loan terms and FIFO payment is also ensured. Since the 2004 regulation provides for determination of tariff unit-wise and station-wise, the FIFO method of repayment results in higher IDC and higher Advance Against Depreciation. The average method when aggregated ensures servicing of entire loan.

31. In phasing of funds for the generating station for the quarter ending 31.3.2007, cumulative repayment of loan is higher. However, as average method of repayment has been followed, the cumulative repayment of loan undergoes a change and for most of the quarter the loan utilization is within limits of 70% of the cost except in the four quarters where the loan utilized is marginally higher, but within the limits on yearly basis. Also, the reduction in IDC from 15.7.2007 as compared to the cost as on 1.4.2007 is on account of the fact that the payments for SBI-III in the average method of repayment in the relevant quarter is less in the average method as compared to the FIFO method. Applying this correction, the capital cost considered for the purpose of tariff computation for the period 1.12.2006 to 31.3.2009 is as under:

	(Rs in lakh)		
	1.12.2006	1.4.2007	15.7.2007
Capitalized cost actually incurred after deduction of liabilities on accrual basis	167122.38	178075.13	314592.07
Reduction in IDC due to average method of repayment	275.72	301.53	294.87
Capitalized cost actually incurred up to the date of commercial operation for the purpose of tariff	166846.66	177773.60	314297.20

Debt-Equity ratio

32. Clause (2) of Regulation 20 of the 2004 regulations, as amended, *inter alia* provide that

“(2) 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:

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;”

33. The petitioner has considered normative debt-equity ratio of 70:30 in line with the 2004 regulations. The equity funding as on date of commercial operation of Unit-I (1.12.2006), and the date of commercial operation of Unit-II (15.7.2007) is marginally above 30%. As such, keeping in line with the 2004 regulations, debt equity ratio of 70:30 has been considered for computation of tariff.

34. Accordingly, against of the capital cost amounting to Rs.314297 lakh arrived at in para 31 above, an amount of Rs.94289 lakh as on 15.7.2007 has been treated as normative equity. For the purpose of tariff, equity has been considered as follows:

	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	(Rs. In lakh) 2008-09
Equity	50054	53332	94289	94289

Return on Equity

35. 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 date of billing. In accordance with these provisions, return on equity has been worked out at 14% per annum on the normative equity and shall be claimed on pro rata basis for part of the year as under:

(Rs in lakh)

	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Equity (Normative)	50054	53332	94289	94289
Addition due to Additional Capitalisation	0	-	-	-
Addition due to FERV	0	-	-	-
Equity (Normative)	50054	53332	94289	94289
Return on Equity @ 14%	7008	7466	13200	13200

Interest on Loan

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

- (a) Interest on loan capital shall be computed loan-wise on the loans arrived at in the manner indicated in Regulation 20.
- (b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per Regulation 20 minus cumulative repayment as admitted by the Commission 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 of any dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold 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 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.

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

37. The interest on loan has been worked out as mentioned below:

(a) Gross normative loan corresponding to 70% of admissible capital cost works out to Rs.116793 lakh as on 1.12.2006, Rs.122414 lakh as on 1.4.2007 and Rs.216116 lakh as on 15.7.2007.

- (b) The net loan opening as on 1.12.2006 is same as gross normative loan and the cumulative repayment of loan is nil.
- (c) The petitioner has considered FIFO method of repayment in case of loans from Allahabad-II, Canara Bank, Corporation Bank, PNB, PNB-II, United Bank, IOB-II, SBI-III, SBT-II, Syndicate Bank, UCO Bank, Vijaya Bank-II, and SBP. Since application of FIFO method may result into higher AAD in case of the existing generating stations and higher IDC in case of ongoing projects, calculations of repayment have been made on average basis, taking into consideration terms and conditions of the loan drawal as furnished by the petitioner in Form 8, and the information and clarifications subsequently furnished.
- (d) The petitioner has considered rate of interest on monthly/quarterly/half-yearly rates. In our computation, rate of interest has been considered on annual rest basis.
- (e) Repayment of actual loan has been used to calculate normative repayment of loan. Normative repayment has been worked out as per formula below:

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

- (f) As per methodology adopted by the Commission for the tariff period 2004-09, normative repayment of loan or depreciation whichever is

higher has been treated a repayment during the year. The calculation as per this methodology is subject to the final decision of the Hon'ble Supreme Court in the Civil Appeal No. 5434/2007 and other related appeals filed by the Commission against the judgments of the Appellate Tribunal for Electricity. 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.

- (g) Financial charges of 0.03% for bonds (surveillance fee) and 20.91% /21.115% withholding tax for Euro Bond incurred towards loans have been allowed and taken into consideration for calculation of interest on loan.
- (h) Some of the loans carry floating rates of interest namely, SBP, SBI-III and SBI-II (9.75%) and Vijaya Bank (8.5%). Interest rates prevailing as on date of commercial operation of the generating station has been considered for interest computation. However interest on loan would be subject to adjustment on the basis of actual rate of interest applicable for the period.
- (i) Bullet repayment has been considered in case of foreign loans (Euro Bond).

- (j) The petitioner has calculated average net loan for interest using day product method so as to true up its claim. Since all other claims are not trued up, the method employed by the petitioner has not been considered. Average net loan has been calculated as average of opening and closing as was being done for other tariff orders pertaining to the period 2004-09.
- (k) No ceiling is applicable in case of Bond XXIV issue as confirmed by the petitioner.
- (l) Loan drawn up to the date of commercial operation of the generating station has been considered. Working Capital Margin has not been considered and loans drawn for capital expenditure from Allahabad Bank and Vijaya Bank have been considered.
- (m) Rate of interest as prevailing has been considered and any variation in the rates shall be settled mutually.
- (n) Date of moratorium considered in case of LIC-III is 15.1.2004 and the starting date of repayment as 31.12.2007, as confirmed by the petitioner in its affidavit dated 1.4.2008.

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

Calculation of Weighted Average Rate of Interest

(Rs in lakh)

	Details of Loan	2006-07	2007-08	2007-08	2008-09
		1.12.06 to	1.4.07 to	15.07.07 to	
		31.03.07	14.07.07	31.03.08	
1	State Bank of Patiala				
	Net Loan-Opening	10000.00	10000.00	10000.00	9285.71
	Repayment during the year	0.00	0.00	714.29	1428.57
	Net Loan-Closing	10000.00	10000.00	9285.71	7857.14
	Average Loan	10000.00	10000.00	9642.86	8571.43
	Rate of Interest	8.64%	9.71%	9.75%	9.75%
	Interest	864.05	971.19	940.18	835.71
	Rep Schedule	14 HALF YEARLY instalments wef 20.03.2008			
2	Canara Bank				
	Net Loan-Opening	464.29	428.57	428.57	357.14
	Repayment during the year	35.71	0.00	71.43	71.43
	Net Loan-Closing	428.57	428.57	357.14	285.71
	Average Loan	446.43	428.57	392.86	321.43
	Rate of Interest	7.25%	7.25%	7.25%	7.25%
	Interest	32.37	31.07	28.48	23.30
	Rep Schedule	14 HALF YEARLY instalments wef 4.07.2006			
3	Corporation Bank				
	Net Loan-Opening	5000.00	5000.00	5000.00	5000.00
	Repayment during the year	0.00	0.00	0.00	357.14
	Net Loan-Closing	5000.00	5000.00	5000.00	4642.86
	Average Loan	5000.00	5000.00	5000.00	4821.43
	Rate of Interest	7.20%	7.20%	7.20%	7.20%
	Interest	360.00	360.00	360.00	347.14
	Rep Schedule	14 HALF YEARLY instalments wef 4.01.2009			
4	Indian Overseas Bank				
	Net Loan-Opening	5000.00	5000.00	5000.00	5000.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	5000.00	5000.00	5000.00	5000.00
	Average Loan	5000.00	5000.00	5000.00	5000.00
	Rate of Interest	7.00%	7.00%	7.00%	7.00%
	Interest	350.00	350.00	350.00	350.00
	Rep Schedule	14 HALF YEARLY instalments wef 0.09.2009			
5	Punjab National Bank				
	Net Loan-Opening	3272.73	2909.09	2909.09	2181.82
	Repayment during the year	363.64	0.00	727.27	727.27
	Net Loan-Closing	2909.09	2909.09	2181.82	1454.55
	Average Loan	3090.91	2909.09	2545.45	1818.18
	Rate of Interest	7.25%	7.25%	7.25%	7.25%
	Interest	224.09	210.91	184.55	131.82

	Rep Schedule	14 HALF YEARLY instalments wef 30.09.2004			
	Rep Schedule(Modified)	11 HALF YEARLY instalments wef 30.03.2006			
6	Punjab National Bank-II				
	Net Loan-Opening	700.00	700.00	700.00	700.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	700.00	700.00	700.00	700.00
	Average Loan	700.00	700.00	700.00	700.00
	Rate of Interest	8.50%	8.50%	8.50%	8.50%
	Interest	59.50	59.50	59.50	59.50
	Rep Schedule	14 HALF YEARLY instalments wef 26.03.2010			
7	SBI-III				
	Net Loan-Opening	15000.00	13928.57	13928.57	11785.71
	Repayment during the year	1071.43	0.00	2142.86	2142.86
	Net Loan-Closing	13928.57	13928.57	11785.71	9642.86
	Average Loan	14464.29	13928.57	12857.14	10714.29
	Rate of Interest	8.64%	9.71%	9.75%	9.75%
	Interest	1249.79	1352.73	1253.57	1044.64
	Rep Schedule	14 HALF YEARLY instalments wef 30.03.2007			
8	SBT-II				
	Net Loan-Opening	3000.00	3000.00	3000.00	2571.43
	Repayment during the year	0.00	0.00	428.57	428.57
	Net Loan-Closing	3000.00	3000.00	2571.43	2142.86
	Average Loan	3000.00	3000.00	2785.71	2357.14
	Rate of Interest	8.64%	9.71%	9.75%	9.75%
	Interest	259.21	291.36	271.61	229.82
	Rep Schedule	14 HALF YEARLY instalments wef 30.09.2007			
9	Syndicate Bank				
	Net Loan-Opening	25000.00	25000.00	25000.00	25000.00
	Repayment during the year	0.00	0.00	0.00	3571.43
	Net Loan-Closing	25000.00	25000.00	25000.00	21428.57
	Average Loan	25000.00	25000.00	25000.00	23214.29
	Rate of Interest	7.25%	7.25%	7.25%	7.25%
	Interest	1812.50	1812.50	1812.50	1683.04
	Rep Schedule	14 HALF YEARLY instalments wef 29.05.2008			
10	UCO Bank				
	Net Loan-Opening	1735.71	1542.86	1542.86	1157.14
	Repayment during the year	192.86	0.00	385.71	385.71
	Net Loan-Closing	1542.86	1542.86	1157.14	771.43
	Average Loan	1639.29	1542.86	1350.00	964.29
	Rate of Interest	7.35%	7.35%	7.35%	7.35%
	Interest	120.49	113.40	99.23	70.88
	Rep Schedule	14 HALF YEARLY instalments wef 26.08.2004			
11	United Bank of India				

	Net Loan-Opening	3214.29	2857.14	2857.14	2142.86
	Repayment during the year	357.14	0.00	714.29	714.29
	Net Loan-Closing	2857.14	2857.14	2142.86	1428.57
	Average Loan	3035.71	2857.14	2500.00	1785.71
	Rate of Interest	7.25%	7.25%	7.25%	7.25%
	Interest	220.09	207.14	181.25	129.46
	Rep Schedule	14 HALF YEARLY instalments wef 26.08.2004			
12	Vijaya Bank-II				
	Net Loan-Opening	0.00	7200.00	7200.00	7200.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	7200.00	7200.00	7200.00	7200.00
	Average Loan	3600.00	7200.00	7200.00	7200.00
	Rate of Interest	8.50%	8.50%	8.50%	8.50%
	Interest	306.00	612.00	612.00	612.00
	Rep Schedule	14 HALF YEARLY instalments wef 26.08.2010			
13	Allahabad Bank-II				
	Net Loan-Opening	0.00	0.00	1000.00	1000.00
	Repayment during the year	0.00	0.00	0.00	71.43
	Net Loan-Closing	0.00	1000.00	1000.00	928.57
	Average Loan	0.00	500.00	1000.00	964.29
	Rate of Interest	7.00%	7.00%	7.00%	7.00%
	Interest	0.00	35.00	70.00	67.50
	Rep Schedule	14 HALF YEARLY instalments wef 26.03.2009			
14	ICICI Bank-II T-3 D-1				
	Net Loan-Opening	2000.00	1900.00	1800.00	1500.00
	Repayment during the year	100.00	100.00	300.00	400.00
	Net Loan-Closing	1900.00	1800.00	1500.00	1100.00
	Average Loan	1950.00	1850.00	1650.00	1300.00
	Rate of Interest	7.10%	7.10%	7.10%	7.10%
	Interest	138.45	131.35	117.15	92.30
	Rep Schedule	20 QUATERLY instalments wef 05.03.2007			
15	LIC-III T-1 D-1				
	Net Loan-Opening	8000.00	8000.00	8000.00	7600.00
	Repayment during the year	0.00	0.00	400.00	800.00
	Net Loan-Closing	8000.00	8000.00	7600.00	6800.00
	Average Loan	8000.00	8000.00	7800.00	7200.00
	Rate of Interest	6.571%	6.571%	6.571%	6.571%
	Interest	525.68	525.68	512.54	473.11
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
16	LIC-III T-2 D-1				
	Net Loan-Opening	20000.00	20000.00	20000.00	19000.00
	Repayment during the year	0.00	0.00	1000.00	2000.00
	Net Loan-Closing	20000.00	20000.00	19000.00	17000.00
	Average Loan	20000.00	20000.00	19500.00	18000.00
	Rate of Interest	7.619%	7.619%	7.619%	7.619%
	Interest	1523.80	1523.80	1485.71	1371.42
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			

17	LIC-III T-3 D-1				
	Net Loan-Opening	25000.00	25000.00	25000.00	23750.00
	Repayment during the year	0.00	0.00	1250.00	2500.00
	Net Loan-Closing	25000.00	25000.00	23750.00	21250.00
	Average Loan	25000.00	25000.00	24375.00	22500.00
	Rate of Interest	7.732%	7.732%	7.732%	7.732%
	Interest	1933.00	1933.00	1884.68	1739.70
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
18	LIC-III T-4 D-1				
	Net Loan-Opening	2100.00	2100.00	2100.00	1995.00
	Repayment during the year	0.00	0.00	105.00	210.00
	Net Loan-Closing	2100.00	2100.00	1995.00	1785.00
	Average Loan	2100.00	2100.00	2047.50	1890.00
	Rate of Interest	8.523%	8.523%	8.523%	8.523%
	Interest	178.98	178.98	174.51	161.08
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
19	LIC-III T-4 D-2				
	Net Loan-Opening	6000.00	6000.00	6000.00	5700.00
	Repayment during the year	0.00	0.00	300.00	600.00
	Net Loan-Closing	6000.00	6000.00	5700.00	5100.00
	Average Loan	6000.00	6000.00	5850.00	5400.00
	Rate of Interest	8.315%	8.315%	8.315%	8.315%
	Interest	498.90	498.90	486.43	449.01
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
20	LIC-III T-4 D-3				
	Net Loan-Opening	0.00	3500.00	3500.00	3325.00
	Repayment during the year	0.00	0.00	175.00	350.00
	Net Loan-Closing	3500.00	3500.00	3325.00	2975.00
	Average Loan	1750.00	3500.00	3412.50	3150.00
	Rate of Interest	8.2771%	8.2771%	8.2771%	8.2771%
	Interest	144.85	289.70	282.46	260.73
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
21	LIC-III T-4 D-4				
	Net Loan-Opening	0.00	2000.00	2000.00	1900.00
	Repayment during the year	0.00	0.00	100.00	200.00
	Net Loan-Closing	2000.00	2000.00	1900.00	1700.00
	Average Loan	1000.00	2000.00	1950.00	1800.00
	Rate of Interest	8.7281%	8.7281%	8.7281%	8.7281%
	Interest	87.28	174.56	170.20	157.11
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
22	LIC-III T-4 D-5				
	Net Loan-Opening	0.00	3500.00	3500.00	3325.00
	Repayment during the year	0.00	0.00	175.00	350.00
	Net Loan-Closing	3500.00	3500.00	3325.00	2975.00
	Average Loan	1750.00	3500.00	3412.50	3150.00

	Rate of Interest	8.7576%	8.7576%	8.7576%	8.7576%
	Interest	153.26	306.52	298.85	275.86
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
	LIC-III Consolidated				
	Net Loan-Opening	61100.00	70100.00	70100.00	66595.00
	Repayment during the year	0.00	0.00	3505.00	7010.00
	Net Loan-Closing	70100.00	70100.00	66595.00	59585.00
	Average Loan	65600.00	70100.00	68347.50	63090.00
	Rate of Interest	7.6917%	7.7477%	7.7477%	7.7477%
	Interest	5045.75	5431.14	5295.36	4888.03
	Rep Schedule	20 HALFYEARLY instalments wef 31.12.2007			
23	Bonds XVII Series				
	Net Loan-Opening	5000.00	5000.00	5000.00	5000.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	5000.00	5000.00	5000.00	5000.00
	Average Loan	5000.00	5000.00	5000.00	5000.00
	Rate of Interest	8.51%	8.51%	8.51%	8.51%
	Interest	425.50	425.50	425.50	425.50
	Rep Schedule	Bullet Payment on 01.05.2023			
24	Bonds XVIII Series				
	Net Loan-Opening	13000.00	13000.00	13000.00	13000.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	13000.00	13000.00	13000.00	13000.00
	Average Loan	13000.00	13000.00	13000.00	13000.00
	Rate of Interest	5.98%	5.98%	5.98%	5.98%
	Interest	777.40	777.40	777.40	777.40
	Rep Schedule	5 YEARLY instalments wef 15.09.2009			
25	Bonds XIX Series				
	Net Loan-Opening	3000.00	3000.00	3000.00	3000.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	3000.00	3000.00	3000.00	3000.00
	Average Loan	3000.00	3000.00	3000.00	3000.00
	Rate of Interest	7.53%	7.53%	7.53%	7.53%
	Interest	225.90	225.90	225.90	225.90
	Rep Schedule	Bullet Payment on 12.01.2019			
26	Bonds XXI Series				
	Net Loan-Opening	12500.00	12500.00	12500.00	12500.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	12500.00	12500.00	12500.00	12500.00
	Average Loan	12500.00	12500.00	12500.00	12500.00
	Rate of Interest	7.7425%	7.7425%	7.7425%	7.7425%
	Interest	967.81	967.81	967.81	967.81
	Rep Schedule	20 HALFYEARLY instalments wef 02.08.2010			
27	Bonds XXII Series				
	Net Loan-Opening	0.00	1500.00	1500.00	1500.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	1500.00	1500.00	1500.00	1500.00
	Average Loan	750.00	1500.00	1500.00	1500.00

	Rate of Interest	8.2071%	8.2071%	8.2071%	8.2071%
	Interest	61.55	123.11	123.11	123.11
	Rep Schedule	20 HALFYEARLY instalments wef 02.07.2011			
28	Bonds XXIII Series				
	Net Loan-Opening	0.00	7700.00	7700.00	7700.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	7700.00	7700.00	7700.00	7700.00
	Average Loan	3850.00	7700.00	7700.00	7700.00
	Rate of Interest	8.4096%	8.4096%	8.4096%	8.4096%
	Interest	323.77	647.54	647.54	647.54
	Rep Schedule	20 HALFYEARLY instalments wef 05.08.2011			
29	Bonds XXIV Series				
	Net Loan-Opening	0.00	2000.00	2000.00	2000.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	2000.00	2000.00	2000.00	2000.00
	Average Loan	1000.00	2000.00	2000.00	2000.00
	Rate of Interest	8.6377%	8.6377%	8.6377%	8.6377%
	Interest	86.38	172.75	172.75	172.75
	Rep Schedule	20 HALFYEARLY instalments wef 09.09.2011			
30	Euro Bonds-II				
	Net Loan-Opening	26288.48	25594.06	23802.60	23802.60
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	25594.06	23802.60	23802.60	23802.60
	Average Loan	25941.27	24698.33	23802.60	23802.60
	Rate of Interest	7.5373%	7.5569%	7.5569%	7.5569%
	Interest	1955.28	1866.44	1798.75	1798.75
	Rep Schedule	Bullet repayment on 02.03.2016			
	Total Loan				
	Net Loan-Opening	195275.49	219860.30	218968.83	209979.41
	Repayment during the year	2120.78	100.00	8989.42	17308.70
	Net Loan-Closing	219860.30	218968.83	209979.41	192670.71
	Average Loan	207567.89	219414.56	214474.12	201325.06
	Rate of Interest	7.6437%	7.8280%	7.8211%	7.8003%
	Interest	15865.88	17175.74	16774.13	15703.90

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

COMPUTATION OF INTEREST ON LOAN

(Rs in lakh)

Interest on Loan	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Gross Loan (Normative)	116793	124442	220008	220008
Addition due to Additional Capitalization	-	-	-	-
Addition due to FERV	-	-	-	-
Gross Normative Loan	116793	124442	220008	220008
Cumulative Repayment upto Previous Year	0	2027	3892	12764
Net Loan-Opening	116793	122414	216116	207244
Repayment during the year	2027	1864	8872	17083
Net Loan-Closing	114765	120550	207244	190161
Average Loan	115779	121482	211680	198702
Weighted Average Rate of Interest on Loan	7.6437%	7.8280%	7.8211%	7.8003%
Interest	8850	9510	16556	15499

Depreciation

40. Sub-clause (a) of clause (ii) of Regulation 21 of the 2004 regulations provides for computation of depreciation in the following manner:

(i) The value base for the purpose of depreciation shall be the historical cost of the asset.

(ii) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalization on account of Foreign

Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government /Commission.

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

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

41. Weighted average rate of depreciation calculated by the petitioner is 3.69% as on 1.12.2006 and 3.65% as on 15.7.2007. Since asset-wise liability provision is not furnished, calculation of depreciation rate has been based on gross value of the assets as furnished by the petitioner at applicable rates as per Appendix-II to the 2004 regulations and applied on pro rata basis on the admissible capital cost. For certain assets not listed in Appendix II, the rates considered are as applicable to similar assets listed therein as considered in other tariff orders for the period 2004-09. Accordingly, the rates of depreciation viz. 3.65% on 1.12.2006, and 3.63% on 15.7.2007 have been adopted and the depreciation calculated is as under:

(Rs. in lakh)

Details of Depreciation		1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Gross block as on COD		166847	177774	314297	314279
Depreciation					
Rate of Depreciation	3.65% & 3.63%				
Depreciation value including amortisation of lease land in 25 yrs.	90%	150162	159996	282867	282867
Balance Useful life of the asset		-	-	-	-
Remaining Depreciable Value		150162	157969	278976	270104
Depreciation		2027	1864	8097	11398
Depreciation(annualized)		6082	6480	11398	11398

Advance Against Depreciation

42. As per sub-clause (b) of clause (ii) of Regulation 21 of the 2004 regulations, in addition to allowable depreciation, the generating company shall be 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

43. 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.

44. The petitioner has claimed Advance Against Depreciation based on repayment of the loan as considered for working out interest on loan. As mentioned above, the petitioner has considered FIFO method of repayment in case of loans from Allahabad-II, Canara Bank, Corporation Bank, PNB, PNB-II, United Bank, IOB-II, SBI-III, SBT-II, Syndicate Bank, UCO Bank, Vijaya Bank-II, and SBP. For the reasons already stated, all calculations of actual repayment have been made on average basis, taking into consideration terms and conditions of the loan drawal as per Form-8 as furnished by the petitioner and subsequent information and clarification called for and submitted by the petitioner. 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 above.

45. Based on the above, the petitioner is entitled to Advance Against Depreciation, as shown hereunder:

ADVANCE AGAINST DEPRECIATION

	(Rs in lakh)			
	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
1/10th of Gross Loan(s)	11679	12444	22001	22001
Repayment of the Loan	2027	1864	8872	17083
Minimum of the above	2027	1864	8872	17083
Depreciation during the year	2027	1864	8097	11398
(A) Difference	0	0	775	5685
Cumulative Repayment of the Loan	2027	3892	12764	29847
Cumulative Depreciation	2027	3892	11989	24162
(B) Difference	0	0	775	5685
Advance against Depreciation Minimum of (A) and (B)	0	0	775	5685
Advance Against Depreciation (annualized)	-	-	1087	-

O&M Expenses

46. The 2004 regulations lay down the following O&M expense norms for 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

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

(Rs in. lakh)				
Year	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
O&M Expenses	5060	5260	10520	10950

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

49. The petitioner has prayed for a specific deviation pertaining to water charges in O&M expenses. 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, according to the petitioner, 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.

50. The respondent No. 1 by its affidavit dated 6.2.2008 has submitted that the water charges are included in the normative O&M charges in the 2004

regulations and has objected to the claim of the petitioner, for additional water charges.

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

52. 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 on this issue at this stage. The petitioner may approach for relief in this regard at an appropriate stage in accordance with law

Interest on Working Capital

53. 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.

54. 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.

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

(a) Coal stock: The coal cost has been worked out for 1-1/2 months on the basis of operational parameters and weighted average price of coal.

(b) Secondary Fuel Oil: The petitioner has claimed the following cost of fuel in the working capital based on price and GCV of coal for preceding three months from the date of commercial operation of the generating station.

(Rs in lakh)

Particulars	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Cost of coal for 1.1/2 months	3644	3654	7269	7249
Cost of secondary fuel oil for two months	269	269	569	568

Since HFO is the main secondary fuel oil, it is considered for the computation of working capital and base rate of energy charge. Accordingly, the fuel component in working capital works out as follows for the tariff period 1.12.2006 to 31.3.2009:

(Rs in lakh)

Particulars	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Cost of coal for 1.1/2 months	3649	3649	7269	7250
Cost of secondary fuel oil for two months.	268	268	564	563

(c) O&M Expenses: O&M expenses for working capital have 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 the following capital cost. The amount claimed for maintenance spares for the purpose is given below:

(Rs in lakh)

Year	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Amount claimed for maintenance spares	1875	2000	3493	3703

The spares requirement has been worked out based on the admissible capital cost as on date of commercial operation after excluding undischarged liabilities and escalated @ 6% per annum to arrive at permissible spares for the relevant years. The amount of spares included in gross block on various dates as furnished by the petitioner is Rs.714 lakh as on 1.12.2006 (COD of Unit-I), Rs.714 lakh as on 14.7.2007 and Rs.1689 lakh as on 15.7.2007 (COD of generating station). Accordingly,

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 considered in the computation of working capital is as under:

(Rs in lakh)

		1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Gross Block		166847	177774	314297	
Initial Spares included		714	714	1689	
Effective Gross Block for Maintenance spares		166133	177060	312609	
Maintenance spares @1 % of capital cost	1%				
Escalation	6.00%				
Period during the Year		0.33	0.29	0.71	1.00
Maintenance Spares		1661.33	1770.60	3126.09	3259.69

(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

(Rs.in lakh)

	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	2008-09
Variable charges (Ex-bus) (Rs/kWh)	0.9503	0.9503	0.9468	0.9468
Variable charges per year (Rs in lakh)	30800	30800	61546	61377
Variable charges -2 months	5133	5133	10258	10230
Fixed charges -2 months	4772	5065	9437	10116
Receivables	9905	10198	19695	20345

56. The average SBI PLR of 10.25% and 12.25 % has been considered as the rate of interest on working capital during the period 1.12.2006 to 14.7.2007 and 15.7.2007 to 31.3.2009 respectively.

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

Calculation of Interest on Working Capital

	(Rs in lakh)			
	2006-07	2007-08	2007-08	2008-09
	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	1.4.2008 to 31.3.2009
Coal Stock- 1.1/2 months	3649	3649	7270	7250
Oil stock -2 months	268	268	564	563
O & M expenses	422	438	877	913
Spares	1661	1771	3126	3260
Receivables	9905	10198	19695	20345
Total Working Capital	15905	16324	31532	32330
Rate of Interest	10.25%	10.25%	12.25%	12.25%
Total Interest on Working capital	1630	1673	3863	3960

Target Availability

58. 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 1.1.2007 to 31.3.2009.

Annual Fixed charges

59. The annual fixed charges for the period 1.12.2006 to 31.3.2009 allowed in this order are summed up as below:

(Rs. in lakh)

Particulars	2006-07	2007-08	2007-08	2008-09
	1.12.2006 to 31.3.2007	1.4.2007 to 14.7.2007	15.7.2007 to 31.3.2008	1.4.2008 to 31.3.2009
Interest on Loan	8850	9510	16556	15499
Interest on Working Capital	1630	1673	3863	3960
Depreciation	6082	6480	11398	11398
Advance against Depreciation	0	0	1087	5685
Return on Equity	7008	7466	13200	13200
O&M Expenses	5060	5260	10520	10950
Total	28630	30390	56624	60693

Energy/Variable Charges

60. The petitioner has adopted the following operational norms for 500 MW units as per clause (v) and (vi) of Regulation 16 of the 2004 regulations:

Sp. Oil Consumption	2 ml/kWh
Auxiliary Consumption*	7.5%
Heat Rate	2450 Kcal/kWh

*as this unit has closed cooling towers

61. The petitioner has claimed the rate of energy charge of 94.92 paise/kWh for period 1.12.2006 to 14.7.2007 and 94.71 paise/kWh from 15.7.2007 based on above operational parameters and following weighted average price and GCV of coal and secondary fuel oils (LDO+HFO) procured during preceding three months:

	For period 1.12.2006 to 14.7.2007 for Unit-I	From 15.7.2007 onwards
GCV of Oil (LDO+HFO)	9730.33 kCal/L	9730.33 kCal/L
GCV of Coal	3628.67 kCal/Kg	3694.00 kCal/Kg
Weighted Average Price of Oil (as procured basis) (LDO+HFO)	23036.50 Rs./KL	24303.38 Rs./KL
Price of Coal (as procured basis)	1242.01 Rs./MT	1257.65 Rs./MT

62. HSD/LDO is 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 should only be considered for the computation of working capital requirement and base rate of energy charge. Therefore, HFO has been allowed as secondary fuel oil for the purpose of base rate of energy charge.

63. Further, FPA clause in the 2004 regulations takes care of the cost of HSD/LDO used at the generating station on as consumed basis on month-to-month basis. As such, the petitioner is not being denied reimbursement of HSD/LDO whenever used.

64. The petitioner has claimed the rate of energy charge at 94.92 paise/kWh for period from 1.12.2006 to 14.7.2007 and 94.71paise/kWh from 15.7.2007 onwards. However, base rate of energy charge works out to 95.03 paise/kWh for the period 1.12.2006 to 14.7.2007 and 94.68 paise/kWh from 15.7.2007 onwards as per following computations:

Description	Unit	From 1.12.2006 to 14.7.2007 for unit-I	From 15.7.2007 onwards
Capacity	MW	500	1000.00
Gross Station Heat Rate	kCal/kWh	2450	2450.00
Specific Fuel Oil Consumption	ml/kWh	2.00	2.00
Aux. Energy Consumption	%	7.5%	7.5%
Weighted Average GCV of Oil	kCal/l	9730	9730.38
Weighted Average GCV of Coal	kCal/Kg	3623.60	3693.28

Weighted Average Price of Oil (HFO only)	Rs./KL	22960.09	24081.76
Weighted Average Price of Coal	Rs./MT	1242.01	1257.65
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	4.59	4.82
Heat Contributed from HFO	kCal/kWh	19.46	19.46
Heat Contributed from Coal	kCal/kWh	2430.54	2430.54
Specific Coal Consumption	Kg/kWh	0.67	0.66
Rate of Energy Charge from Coal	Paise/kWh	83.31	82.77
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	95.03	94.68

65. The base rate of energy charges shall however, be subject to fuel price adjustment as per the formula given below: -

$$FPA = A + B$$

Where,

- FPA – Fuel price Adjustment for a month in Paise/kWh Sent out
A – Fuel price adjustment for Secondary Fuel oil in Paise/kWh sent out
B – Fuel price adjustment for Coal in Paise/kWh sent out

And,

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

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

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

Other charges

66. In addition to the charges approved above, the petitioner is entitled to recover other charges like incentive, claim for reimbursement of Income-tax, other taxes, cess levied by a statutory authority, in accordance with the 2004 regulations, as applicable.

Reimbursement of charges

67. The petitioner has also sought approval for the reimbursement of expenditure incurred on publication of notices in the newspapers. Although the

petitioner has confirmed publication of public notices and submitted copies of the notices vide its affidavit dated 28.12.2007, the expenditure incurred in this regards is not available on record. We direct that 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 on production of evidence of incurring expenditure to the respondents. 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. The view taken on consideration of the comments received shall apply in the present case as regards reimbursement of filing fee.

68. 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.

69. This order disposes of Petition No.155/2007

Sd/-
(R. KRISHNAMOORTHY)
MEMBER

Sd/-
(BHANU BHUSHAN)
MEMBER

New Delhi dated the 31st July, 2008