

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

1. **Shri Ashok Basu, Chairman**
2. **Shri K.N.Sinha, Member**
3. **Shri Bhanu Bhushan, Member**

**Petition No.35/2001**

**In the matter of**

Approval of tariff in respect of Talcher Super Thermal Power Station for the period from 1.4.2001 to 31.3.2004.

**And in the matter of**

National Thermal Power Corporation Ltd.

.....**Petitioner**

**Vs**

1. West Bengal State Electricity Board, Kolkata
2. Bihar State Electricity Board, Patna
3. Jharkand State Electricity Board, Ranchi
4. Grid Corporation of Orissa Ltd., Bhubaneshwar
5. Damodar Valley Corporation, Kolkata
6. Power Deptt., Govt. of Sikkim, Gangtok
7. Assam State Electricity Board, Guwahati
8. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
9. Tamil Nadu State Electricity Board, Chennai
10. Kerala State Electricity Board, Trivandrum
11. Karnataka Power Transmission Corporation Ltd., Bangalore
12. Uttar Pradesh Power Corpn. Limited, Lucknow
13. Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Jaipur
14. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
15. Power Department, Union Territory of Chandigarh, Chandigarh
16. Madhya Pradesh State Electricity Board, Jabalpur
17. Gujarat Electricity Board, Vadodara
18. Electricity Deptt., Union Territory of Pondicherry, Pondicherry...**Respondents**

**The following were present**

1. Shri M.G. Ramachandran, Advocate, NTPC
2. Shri V.B.K. Jain, NTPC
3. Shri I.J. Kapoor, NTPC
4. Shri T.R. Sohal, NTPC
5. Shri Balaji Dubey, Dy. Mgr Law, NTPC
6. Shri N. Ahmad, NTPC
7. Shri R.N. Sen, NTPC

8. Shri S.D. Jha, NTPC
9. Shri S.K. Samvi, NTPC
10. Shri K.V. Balakrishnan, NTPC
11. Shri R. Singhal, NTPC
12. Shri Guryog Singh, NTPC
13. Shri Robin Mazumdar, NTPC
14. Shri R Chhabra, NTPC
15. Shri N.P. Sharar, NTPC
16. Shri Satya Prakash, NTPC
17. Shri G.K. Dua, NTPC
18. Shri S. Chattopadhyay, DVC
19. Shri S. Dutta Chowdhary, DVC
20. Shri R.K. Arora, HVPN

**ORDER**  
**(DATE OF HEARING 3.8.2004)**

This petition has been filed by the petitioner, NTPC, a generating company owned by the Central Government for approval of tariff in respect of Talcher Super Thermal Power Station, (hereinafter referred to as “ Talcher STPS”) for the period from 1.4.2001 to 31.3.2004 based on the terms and conditions contained in the Commission’s notification dated 26.3.2001, (hereinafter referred to as “the notification dated 26.3.2001”).

2. Talcher STPS with capacity of 1000 MW, comprising 2 units of 500 MW each, was sanctioned at a cost of Rs.254303.00 lakh by the Ministry of Power under its letter dated 4.10.1996. The date of commercial operation of the first Unit was 1.1.1997 and that of the second unit was 1.7.1997.

3. The tariff for the station was earlier notified by Ministry of Power vide its notification dated 5.5.1999 valid for the period ending 31.3.2002. Meanwhile, the terms and conditions for determination of tariff notified by the Commission came into force

with effect from 1.4.2001, valid up to 31.3.2004. Therefore, the present petition has been filed for approval of tariff from 1.4.2001 to 31.3.2004.

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

(Rs. in lakh)

SI No.	Particulars	2001-02	2002-03	2003-04
1	Interest on Loan	11988	10474	9233
2	Interest on Working Capital	3103	3161	3260
3	Depreciation	9481	9497	9507
4	Advance against Depreciation	1402	0	0
5	Return on Equity	20896	20930	20952
6	O & M Expenses	9407	9971	10569
7.	Water Charges	95	95	95
	<b>TOTAL</b>	<b>56372</b>	<b>54128</b>	<b>53616</b>

5. The details of Working Capital furnished by the petitioner and its claim for interest thereon are summarised hereunder:

(Rs. in lakh)

	2001-02	2002-03	2003-04
Fuel Cost	2123	2270	2428
Coal Stock	946	1009	1077
Oil stock	462	504	550
O & M expenses	784	831	881
Spares	3763	3988	4228
Receivables	15574	15499	15732
Total Working Capital	23651	24102	24896
Working Capital Margin (WCM)	4915	4915	4915
Total Working Capital allowed	18736	19187	19981
Rate of Interest	12.35%	12.35%	12.35%
Interest on allowed Working Capital	2315	2370	2469
Interest on WCM	395	397	398
Return on WCM	393	393	393
<b>Total Interest on Working capital</b>	<b>3103</b>	<b>3161</b>	<b>3260</b>

6. In addition, the petitioner has claimed Energy Charges @ 38.18 paise/kWh for the period 1.4.2001 to 31.3.2004.

### **CAPITAL COST**

7. As per the notification dated 26.3.2001, the capital expenditure of the project shall be financed as per the approved financial package set out in the TEC of CEA or as approved by an appropriate independent agency, as the case may be. The notification dated 26.3.2001 further lays down that the actual capital expenditure incurred on completion of the generating station shall be the criterion for fixation of tariff and where actual expenditure exceeds the approved project cost, the excess expenditure as approved by CEA or an appropriate independent agency shall be deemed to be the actual capital expenditure for the purpose of determining the tariff.

8. The petitioner has claimed tariff based on a capital cost of Rs.260945.00 lakh as on 31.3.2001, which includes a sum of Rs.9797 lakh on account of additional capitalisation and FERV up to 31.3.2001. The petitioner had earlier filed petition No 72/2000 for approval of revised fixed charges due to additional capitalization and FERV for the period up to 31.3.2001. The Commission vide its order dated 24.6.2002 did not allow the additional capitalization and FERV claimed. The relevant part of the order is extracted below:

“We find from the petition that the gross block as on 31.3.1998 was Rs.2451.70 crores. The additional capitalization for three years works out to Rs.48.11 crores. Thus the gross block as on 31.3.2001 would be Rs.2499.81 crores (Rs.2451.70 crores + Rs.48.11 crores) in case additional capitalization is allowed. But Ministry of Power while notifying tariff on 5.5.1999, considered the project cost of Rs.2511.48 crores. Thus, the tariff notified by Ministry of Power is already with a higher capital cost. Therefore, we feel that there was no justification for allowing additional capitalization of Rs.48.11 crores, since with the additional capitalization of Rs.48.11 crores, the capital cost would exceed the

sanctioned capital cost of Rs.2543.03 crores, approved by Ministry of Power vide its letter dated 4.10.1996. The petitioner has clarified that the project cost of Rs.2511.48 crores includes initial spares of Rs.59.78 crores over the gross block of Rs.2451.70 crores as on 31.3.1998. However, the petitioner has not placed any evidence on record to substantiate its claim that the gross block of Rs.2451.70 crores did not already include any component of capitalized initial spares. We are, therefore, satisfied that the additional capitalization as claimed by the petitioner cannot be allowed. In view of the differences in the base figure of capital cost, the component of base foreign exchange cannot be determined and, therefore, revised fixed charges on account of FERV cannot also be determined. “

9. The capital cost of Rs. 251148.00 lakh as considered by the Central Government in its notification dated 5.5.1999 has been adopted as the opening gross block as on 1.4.2001 for the purpose of tariff determination in the present petition. The petitioner has also included anticipated additional capital expenditure of Rs. 500.00 lakh, Rs.358.00 lakh and Rs. 206.00 lakh for the years 2001-02, 2002-03 and 2003-04 respectively, based on budgetary projections. The additional capitalisation claimed by the petitioner has not been considered for tariff determination since the claim is based on the budgetary projections and not on actual cost and is, therefore, out of tune with the notification dated 26.3.2001. Accordingly, the capital cost of Rs.251148.00 lakh has been considered for the purpose of tariff. The petitioner may claim revision of tariff on account of additional capitalisation in accordance with para 1.10 of the notification dated 26.3.2001.

#### **DEBT-EQUITY RATIO**

10. As per the notification dated 26.03.2001, the interest on loan capital and return on equity are to be computed, as per the financial package approved by CEA or an appropriate independent agency, as the case may be. The petitioner has claimed tariff by considering debt and equity in the ratio of 50:50. It has been submitted by the

respondents that debt and equity should be in the ratio of 80:20 or 70:30 as applicable to IPPs.

11. We have considered the rival submissions. Ministry of Power, while notifying tariff vide its notification dated 5.5.1999 had considered the normative debt-equity ratio of 50:50. Therefore, for the purpose of present petition, debt-equity ratio of 50:50 has been adopted in the working.

### **TARGET AVAILABILITY**

12. The petitioner has considered Target Availability of 80%, based on the provisions of the notification dated 26.3.2001. Accordingly, Target Availability of 80 % has been considered for recovery of full fixed charges and computation of fuel element in the working capital for the period from 1.4.2001 to 31.3.2004.

### **RETURN ON EQUITY**

13. As per the notification dated 26.3.2001, return on equity shall be computed on the paid up and subscribed capital and shall be 16% of such capital. The petitioner has claimed return @ 16% on normative equity. The respondents have, however, submitted that that return on equity should be payable at 12% and should be allowed on actual equity employed since the cost of servicing equity is higher in comparison to cost involved in servicing debt. In case of generating stations, return on equity was charged in tariff @ 12% per annum till 31.10.1998. However, it was increased to 16% with effect from 1.11.1998. The respondents have contended that there was no justification to increase return on equity from 12% to 16%. As the things stand, the terms and conditions prescribed by the Commission legislate that return on equity should be

allowed @ 16%. Accordingly, we do not find any justification in support of the issue raised. In our computation of tariff, return on equity @ 16% per annum has been allowed.

14. The respondents have further submitted that the tariff for the generating stations belonging to the petitioner were notified by the Ministry of Power based on KP Rao Committee Report wherein it was recommended that once the loan is reduced to zero, the equity component will be reduced progressively to the extent of further depreciation recovered. It is, therefore, contended that the equity needs to be reduced to the extent of depreciation charged after notional loan was repaid. We have considered this submission. The tariff notification issued by Ministry of Power on 5.5.1999 does not provide for reduction of equity after the loan is fully repaid. To that extent, the recommendation of KP Rao Committee does not seem to have been accepted by the Central Government. In any case, the tariff is to be fixed in keeping with the provisions of the notification dated 26.3.2001, which also does not provide for the reduction of equity. Therefore, the contention raised on behalf of the respondents has been found to be without force.

15. The return on equity has been worked out on the average normative equity. The charges payable by the respondents on account of return on equity as under:

(Rs in lakh)			
<b>Particulars</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Opening Balance	125574	125574	125574
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
Closing Balance	125574	125574	125574
Average	125574	125574	125574
Rate of Return on Equity	16.00%	16.00%	16.00%
<b>Return on Equity</b>	<b>20092</b>	<b>20092</b>	<b>20092</b>

16. The reason for the difference between the petitioner's claim on account of return on equity and that allowed by us is primarily for the reason that the opening gross block considered by us for the purpose of tariff is lower than that considered by the petitioner, and the petitioner's claim for additional capitalization has not been considered by us.

### **INTEREST ON LOAN**

17. As per the notification dated 26.3.2001, the interest on loan capital shall be computed on the outstanding loans, duly taking into account the schedule of repayment, as per the financial package approved by CEA or an appropriate independent agency, as the case may be.

18. The fixed charges for the period prior to 1.4.2001 were approved by the Central Government on normative debt. Therefore, while considering interest on loan the methodology as given below has been adopted:

- (a) The gross opening normative loan amount and the cumulative repayment of loan up to 31.3.2001 has been considered as considered by the Central Government in its notification dated 5.5.1999.
- (b) The cumulative repayment of loan up to 31.3.2001 has been taken as per the Central Government notification dated 5.5.1999.
- (c) The annual repayment amount for the years 2001-02 to 2003-04 has been worked out based on actual repayment during the year or as worked out as per the following formula, whichever is higher:

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

- (d) On the basis of actual rate of interest as on 1.4.2001 on actual loans, the weighted rate of interest on average loan is worked out and the same is applied on the normative average loan during the year to arrive at the interest on loan.
- (e) The weighted average interest rate on GOI loans has been worked out by considering each GOI drawl as separate loan.
- (f) The loan draws up to 31.3.2001 only have been considered.
- (g) The financial charges/ Management fees in case of Bonds, UTI-IV and Escalation credit loans have not been considered for working out the interest rate as these Bonds/loans were drawn prior to the date of commercial operation of the station .This is in line with clarification given by the petitioner in petition Nos. 1/2000 and 99/2002 wherein it had clarified that the financial charges for those loans which were drawn prior to the date of commercial operation were already capitalised . However, the Govt. Guarantee fees @ 1.20% per annum in case of Escalation credit loan (foreign loan) has been allowed for working out the interest rate.

19. The petitioner has not submitted any information regarding re-financing of GOI loans in the present petition , it was informed by the petitioner during hearing of petition No. 98/2002 (Tariff of Kahalgaon STPS) on 29.6.2004 that in some cases, GOI loans had been refinanced/substituted. As such, interest on loan shall be subject to adjustment on the basis of actual rate of interest /terms and conditions applicable on refinanced/ substituted loans if any, and the benefits of refinancing would be passed on to the beneficiaries/ultimate consumers in line with the Commission's

order dated 13.12.2002 in petition No. 94/2002, if loans bearing higher rate of interest loans are swapped with loans carrying lower rate of interest.

20. The respondents have contended that the depreciation charged should be adjusted against the outstanding loan. When so adjusted, the entire loan gets repaid and as such interest on loan should not be payable. We have given our utmost consideration to the submission. In our considered view, the submission cannot be accepted. Neither the tariff notification issued by Ministry of Power for the earlier period nor the notification dated 26.3.2001 contains any provision for adjustment of depreciation recovered against the outstanding loan.

21. The computation of interest by applying weighted average interest rate are appended hereinbelow:

**COMPUTATION OF INTEREST ON NOTIONAL LOAN**

(Rs. in lakh)

	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Gross loan-Opening	125574	125574	125574
Cumulative repayments of Loans up to previous year	49299	65065	72999
Net loan-Opening	76275	60509	52575
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
<b>Total</b>	<b>76275</b>	<b>60509</b>	<b>52575</b>
Repayments of Loans during the year	15766	7934	10986
Net loan-Closing	60509	52575	41589
Average Net Loan	68392	56542	47082
Rate of Interest on Loan	<b>15.53%</b>	<b>15.91%</b>	<b>16.04%</b>
<b>Interest on loan</b>	<b>10620</b>	<b>8998</b>	<b>7552</b>

22. The reasons for differences between the petitioner's claim and that allowed under the head "interest on loan" are attributable to the following factors:

- (a) The opening gross block considered in this order is lower than that considered by the petitioner as discussed above.
- (b) Difference in weighted average rate of interest – 16.06%, 16.15% & 16.20% considered in the petition against 15.53%, 15.91% & 16.04% for the years 2001-2002, 2002-2003 and 2003-2004 considered in this order. The difference in weighted average interest rate is due to non-consideration of financial charges in the loans.
- (c) Repayment of loan during the years 2001-2002 to 2003-2004 has been worked out on the basis of formula given at para 18(c) above in the working.
- (d) Due to disallowing of additional capitalisation for the years 2001-2002 to 2003-2004.

### **DEPRECIATION**

23. The notification dated 26.3.2001 prescribes that the value base for the purpose of depreciation shall be historical cost of the asset and the depreciation shall be calculated annually as per straight line method at the rates of depreciation prescribed in the Schedule thereto.

24. Depreciation for the tariff period has been calculated by taking the individual assets and their depreciation rates as per the notification dated 26.3.2001. The weighted average rate of depreciation works out to 3.63% which is same as claimed in the petition. While allowing tariff, depreciation recovered in tariff up to 31.3.2001, as per the Central Government's notification dated 5.5.1999.

25. Depreciation has been considered at opening gross block of Rs. 251148.00 lakh.

The petitioner is entitled to the following amounts on account of depreciation.:

	(Rs. in lakh)		
	2001-02	2002-03	2003-04
<b>Capital Cost</b>			
<b>Capital Cost up to 31.3.2001 as per the Commission's order dated 23.4.2004 in petition No. 96/2002</b>			
Opening Balance	251148	251148	251148
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
Closing Balance	251148	251148	251148
<b>Rate Of Depreciation</b>	3.63%	3.63%	3.63%
<b>Depreciation allowed in tariff</b>	<b>9118</b>	<b>9118</b>	<b>9118</b>
AAD recovered in tariff	1346	0	1346
Depreciation/AAD recovered in tariff	10465	9118	10465
Cumulative Depreciation/AAD recovered in tariff	80251	89369	99833

26. The reasons for the difference between the petitioner's claim on account of depreciation and the depreciation allowed by us are due to disallowing of additional capitalisation during the years 2001-2002 to 2003-2004 and also consideration of lower gross block as on 1.4.2001.

### **ADVANCE AGAINST DEPRECIATION**

27. As per the notification dated 26.3.2001, Advance Against Depreciation shall be permitted wherever originally scheduled loan repayment exceeds the depreciation allowable and shall be computed as follows:

AAD= Originally scheduled loan repayment amount subject to a ceiling of 1/12<sup>th</sup> of original loan amount minus depreciation as per schedule.

28. The gross loan and actual repayment as on 1.4.2001 have been considered for computing Advance Against Depreciation. The petitioner is entitled to claim Advance Against Depreciation as shown below:

(Rs. in lakh)

	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
1/12 <sup>th</sup> of Loan(s)	10465	10465	10465
Scheduled Repayment of the Loan(s)	15766	7934	10986
Minimum of the above	10465	7934	10465
Depreciation during the year	9118	9118	9118
<b>Advance Against Depreciation</b>	<b>1346</b>	<b>0</b>	<b>1346</b>

29. The reasons for the difference between the petitioner's claim on account of advance against depreciation and that allowed by us are for the reason that the opening gross block considered in this order is lower than that considered by the petitioner and additional capitalisation during the years 2001-2002 to 2003-2004 claimed by the petitioner has not been allowed.

### **O&M EXPENSES**

30. As per the notification dated 26.03.2001, operation and maintenance (O&M) expenses including insurance for the stations belonging to the petitioner, which have not been in existence for a period of five years in the base year 1999-2000, the base O&M expenses shall be fixed at 2.5 percent of the actual capital cost as approved by the Authority or an appropriate independent agency, as the case may be, in the year of commissioning and shall be escalated at the rate of 10 percent per annum for subsequent years to arrive at O&M expenses for the base year 2000-2001 level. Thereafter, the base O&M expenses shall be further escalated at the rate of 6 percent per annum to arrive at permissible O&M expenses for the relevant year.

31. The petitioner has claimed O & M expenses, based on the actual expenses for the years 1996-1997 to 2000-2001 as detailed below:

(Rs. in lakh)			
<b>Year</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
O&M expenses (excluding water charges)	9407	9971	10569

32. In addition, the petitioner has claimed water charges of Rs. 95 lakh separately in the fixed charges. As such, total O&M expenses claimed by the petitioner work out as follows:

(Rs. in lakh)			
<b>Year</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
O&M expenses claimed by NTPC (Excluding water charges.) form-15	9407	9971	10569
Water Charges (form-1)	95	95	95
Total O&M including water charges	9502	10066	10664

33. The O&M expenses claimed have been based on O&M of Rs.8067 lakh for the year 1999-2000 arrived at on the basis of 2.5% of the current capital cost escalated by 10% for the year 2000-01 and thereafter escalated at the rate of 6% . The methodology adopted by the petitioner is not in line with the methodology specified under the notification dated 26.3.2001, reproduced at para 30 above.

34. The petitioner's claim on account of O&M expenses has been examined in terms of the notification dated 26.3.2001. The commercial operation of the generating station occurred in 1997-1998 and as on 1.4.2001 the generating station had not completed 5 years of operation. Therefore, in terms of CERC notification dated 26.3.2001, the petitioner is entitled to O&M expenses for the years 2001-2002 to 2003-2004 as computed below:

		At 2.5% of Capital Cost	<b>With escalation 10%</b>		<b>With 6% escalation</b>			
Year commissioning of		1997-98	1998-99	1999-2000	2000-01	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Capital cost	Rs. in lakh	251148						
O&M	Rs lakh	6278.7	6906.57	7597.23	8053.06	<b>8536.24</b>	<b>9048.42</b>	<b>9591.32</b>

35. The above O&M expenses for the years 2001-02, 2002-03 and 2003-04 are inclusive of water charges.

### **INTEREST ON WORKING CAPITAL**

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

- (a) Fuel Cost: As per the notification dated 26.03.2001, fuel cost for one month corresponding to normative Target Availability is to be included in the working capital. Accordingly, the fuel cost is worked out for one month on the basis of operational parameters as given in the notification dated 26.03.2001. The fuel cost allowed in working capital is given hereunder:

	2001-2002	2002-2003	2003-2004
Oil Stock -1 Month (KL)	2044.00	2044.00	2049.60
Oil Stock -1 Month ( Rs. in Lakh)	221	221	222
Coal Stock -1 month (mt)	409140	409140	410261
Coal Stock -1 month ( Rs. in Lakh)	1829.93	1829.93	1834.95
<b>Fuel Cost - 1 month ( Rs. in lakh)</b>	<b>2051.14</b>	<b>2051.14</b>	<b>2056.75</b>

- (b) Coal Stock: As per the notification dated 26.3.2001 cost of reasonable fuel stock as actually maintained but limited to 15 days for pithead station and thirty days for non-pithead stations, corresponding to normative Target Availability should form part of working capital. Accordingly, the coal stock has been worked out for 15 days on the basis of operational

parameters and weighted average price of coal. The coal stock for 15 days has been considered in the calculation since its value is lower than the value as per the audited balance sheet for the year 2000-2001. The cost of coal stock considered has been computed as shown below:

	2001-2002	2002-2003	2003-2004
Weighted Avg. GCV of Coal (kcal/kg)	3521.00	3521.00	3521.00
Heat Contribution by Coal (kCal/kwh)	2466.75	2466.75	2466.75
Specific Coal Consumption (kg/kWh)	0.70	0.70	0.70
Annual Requirement of Coal (mt)	4909680	4909680	4923131
Coal Stock (15 days) (mt)	201768	201768	201768
Weighted Avg. Price of Coal (Rs./mt)	447.26	447.26	447.26
<b>Coal Stock-15 days- (Rs. in Lakh)</b>	<b>902.43</b>	<b>902.43</b>	<b>902.43</b>
<b>Coal Stock-Actual as per audited Balance Sheet for 2000-2001 (Rs. in lakh)</b>	<b>1767</b>	<b>1767</b>	<b>1767</b>

- (c) Oil Stock: As per the notification dated 26.3.2001, 60 days stock of secondary fuel oil, corresponding to normative Target Availability is permissible. Accordingly, the oil stock for 60 days as per the operational parameters and weighted average price of oil has been considered, the details of which are extracted below:

	2001-02	2002-03	2003-04
Weighted Avg. GCV of Oil (kcal/Lit.)	9500.00	9500.00	9500.00
Heat Contribution by Oil (kcal/kWh)	33.25	33.25	33.25
Annual Requirement of Oil (ltrs)	24528000	24528000	24595200
Oil Stock(60 days) (KL)	4032.00	4032.00	4032.00
Weighted Avg. Price of Oil (Rs./KL)	10822.02	10822.02	10822.02
<b>Oil Stock- 60 days- (Rs. in lakh)</b>	<b>436.34</b>	<b>436.34</b>	<b>436.34</b>

- (d) O&M Expenses: As per the notification dated 26.3.2001, operation and maintenance expenses (cash) for one month are permissible as a part of the working capital. Accordingly, O&M expenses for working capital has been worked out for 1 month of O&M expenses approved above are considered in tariff of the respective year.

- (e) Spares: The petitioner has claimed spares at 40% of the O&M expenses claimed. As per the notification dated 26.3.2001, maintenance spares at actuals subject to a maximum of 1% of the capital cost but not exceeding 1 year's requirements less value of 1/5<sup>th</sup> of initial spares already capitalised for first 5 years are required to be considered in the working capital. In the present case, the generating station has not completed 5 years of existence in the base year of 1999-2000 as Unit-1 of Talcher STPS was declared under commercial operation on 1.1.1997 and the Unit-2 was declared under commercial operation on 1.7.1997. As such, the spares requirement for the purpose of working capital has been calculated @ 1% of the capital cost less value of 1/5<sup>th</sup> of initial spares already capitalized.

Regarding capitalisation of spares, the petitioner had submitted in its affidavit dated 13.10.2003 in case of review petition No. 103/2002 in petition No.72/2000 that the spares worth Rs. 4761 lakh (approx) were capitalised as on 31.3.1998 and were included in the gross block of Rs 245170.27 lakh which formed the basis of capital cost admitted by the Central Government in the notification dated 5.5.1999 after allowing the notional initial spares of Rs.5977 lakh for Unit.-1 of Talcher STPS. As such, for working out the maintenance spares for the purpose of working capital , year-wise allocation of capitalised spares of Rs. 4761 lakh @ 1/5<sup>th</sup> each year for the years 2001-02 and 2002-03 and the balance initial spares left for the year 2001-02 (pro-rata allocation for 9 months) after year-wise allocation @ 1/5<sup>th</sup> each year of notional initial

spares of Rs.5977 lakh has been deducted from permissible spares consumption for the relevant years. The calculations in support of spares allowed in working capital are as under:

(Rs. in lakh)

Spares capitalised and included in the Gross Block figure of the project as on 31.3.1998	<b>4761</b>		
Notional initial spares provided for Unit-1 by GOI	<b>5977</b>		
	<b>Tariff Period</b>		
	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
1% of Capital Cost	2511	2511	2511
<b>Less:</b> 1/5th of spares capitalised in the Gross Block figure of the project as on 31.3.1998	952	952	
<b>Less:</b> Balance initial spares after year- wise allocation of Rs.5977 lakh @1/5 each year provided notionally for Unit-1 by GOI	897		
<b>Spares allowed in working capital</b>	<b>663</b>	<b>1559</b>	<b>2511</b>

- (f) Receivables: As per the notification dated 26.3.2001, receivables will be equivalent to two months average billing for sale of electricity calculated on normative Plant Load Factor/Target Availability. 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

<b>Variable Charges</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>
Coal (Rs/kWh)	0.3406	0.3406	0.3406
Oil (Rs/kWh)	0.0412	0.0412	0.0412
Rs./kWh	<b>0.3818</b>	<b>0.3818</b>	<b>0.3818</b>
Variable Charges per year (Rs. in lakh)	24614	24614	24681
<b>Variable Charges -2 months (Rs. in lakh)</b>	<b>4102.27</b>	<b>4102.27</b>	<b>4113.51</b>
<b>Fixed Charges - 2 months (Rs. in lakh)</b>	<b>8656</b>	<b>8259</b>	<b>8354</b>
<b>Receivables (Rs. in lakh)</b>	<b>12758</b>	<b>12361</b>	<b>12468</b>

(g) Working Capital Margin: The notification dated 26.3.2001 is silent on Working Capital Margin. The Central Government in its notification dated 5.5.1999 had considered the Working Capital Margin of Rs.4915.00 lakh while awarding tariff for the period ending 31.3.2002. Accordingly, Working Capital Margin of Rs.4915.00 lakh has been considered in the working. 50% of the Working Capital Margin has been considered as equity and the remaining 50% as loan. Return on equity and interest on loan have been allowed on the respective portion. The interest on loan portion of the Working Capital Margin has been allowed on the basis of weighted average rate of interest.

37. The average SBI PLR of 11.50% has been considered as the rate of interest on working capital during the tariff period 2001-02 to 2003-04, in line with the Commission's earlier decision, against the petitioner's claim for interest at the rate of 12.35%.

38. The necessary details in support of calculation of Interest on Working Capital are appended below:

#### **Calculation of Interest on Working Capital**

(Rs. in lakh)

	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>
Fuel Cost	2051	2051	2057
Coal Stock	902	902	902
Oil stock	436	436	436
O & M expenses	711	754	799
Spares	663	1559	2511
Receivables	12758	12361	12468
<b>Total Working Capital</b>	<b>17522</b>	<b>18064</b>	<b>19174</b>
Working Capital Margin (WCM)	4915	4915	4915
<b>Total Working Capital allowed</b>	<b>12607</b>	<b>13149</b>	<b>14259</b>
Rate of Interest	11.50%	11.50%	11.50%
Interest on allowed Working Capital	1450	1512	1640
Interest on WCM	382	391	394
Return on WCM	393	393	393
<b>Total Interest on Working capital</b>	<b>2225</b>	<b>2296</b>	<b>2427</b>

39. The differences between the petitioner's claim and that permitted in this order under the head 'Interest on Working Capital' are primarily attributed to the following reasons:

- (a) Difference in O&M expenses for the reasons given above,
- (b) 40% of O&M expenses considered in the petition against the maintenance spares worked out @ 1% of capital cost as on 1.4.2001, less value of 1/5<sup>th</sup> of spares capitalised and included in the gross block of the project as on 31.3.1998 and 1/5<sup>th</sup> of notional initial spares capitalised for Unit-1 by the Central Government for the relevant years.
- (c) Difference in variable charges and the fixed charges,
- (d) Difference in various components of working capital, and
- (e) Adoption of SBIPLR of 11.50% as on 1.4.2001 against the interest rate of 12.35% considered as interest rate by the petitioner.

#### **ANNUAL FIXED CHARGES**

40. The annual fixed charges for the period 1.4.1999 to 31.3.2004 allowed in this order are summed up as below:

(Rs. in lakh)				
	<b>Particulars</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>
1	Interest on Loan	10620	8998	7552
2	Interest on Working Capital	2225	2296	2427
3	Depreciation	9118	9118	9118
4	Advance against Depreciation	1346	0	1346
5	Return on Equity	20092	20092	20092
6	O & M Expenses	8536	9048	9591
	<b>TOTAL</b>	<b>51937</b>	<b>49553</b>	<b>50127</b>

41. The reduction in fixed charges under the heads "interest on loan", "depreciation" and "return on equity" qua those claimed in the petition are primarily because of adoption of capital cost as considered by the Central Government in notification dated 5.5.1999 and non-consideration of the petitioner's claim for additional capitalization for the period from 1.4.2001 to 31.3.2004, the reasons for which are given above.

### **ENERGY/VARIABLE CHARGES**

42. The notification dated 26.3.2001 in para 2.3 (a) lays down that the operational norms, except those relating to "Target Availability" and Plant Load Factor" as contained in the existing tariff notifications for individual power stations issued by the Central Government under proviso to Section 43A (2) of the Electricity (Supply) Act, 1948 (for short, "the Supply Act") in respect of the existing stations of NTPC shall continue to apply for those stations.

43. The tariff for Talcher STPS was notified by Ministry of Power vide notification dated 5.5.1999, issued under proviso to Section 43 A (2) of the Supply Act. Therefore, in view of para 2.3 (a) of the notification dated 26.3.2001, the operational norms as contained in Ministry of Power notification dated 5.5.1999 shall govern the operational parameters, applicable to Talcher STPS for the present petition.

44. The fuel price and GCV furnished by the petitioner for the month of Jan, Feb, and March 2001 in the petition have been considered for the base energy charges computation. We have adopted the unit price of coal as per PSL after deliberating on the issue in detail based on the presentation made by the petitioner on 8.4.2003 and the information furnished by the petitioner subsequently. The base energy charge

(BEC) have been computed based on the data furnished by the petitioner are summarised below:

**Computation of Energy Charges**

Description	Unit	
Capacity	MW	1000.00
PLF corresponding to Availability of 80%	%	7008.00
Gross Station Heat Rate	kCal/kWh	2500.00
Specific Fuel Oil Consumption	ml/kWh	3.50
Aux. Energy Consumption	%	8.00
Weighted Average GCV of Oil	kCal/l	9500.00
Weighted Average GCV of Coal	kCal/Kg	3521.00
Weighted Average Price of Oil	Rs./KL	10822.02
Weighted Average Price of Coal	Rs./MT	447.26
Rate of Energy Charge from Sec. Fuel Oil	Paise/kWh	3.79
Heat Contributed from SFO	kCal/kWh	33.25
Heat Contributed from Coal	kCal/kWh	2466.75
Specific Coal Consumption	Kg/kWh	0.70
Rate of Energy Charge from Coal	Paise/kWh	31.33
Base Energy Charge ex-bus per kWh Energy Sent out	Paise/kWh	38.18

45. The base energy charges have been calculated on base value of GCV, base price of fuel and normative operating parameters as indicated in the above table and are subject to fuel price adjustment. The notification dated 26.3.2001 provides for fuel price adjustment for variation in fuel price and GCV of fuels. The base energy charges approved on the basis of norms shall be subject to adjustment. The formula applicable for fuel price adjustment shall be as given below: -

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

**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,**

$$\begin{aligned}
 \mathbf{A} &= \frac{10 \times (\text{SFC}_n)}{(100 - \text{AC}_n)} \left\{ (P_{om}) - (P_{os}) \right\} \\
 \mathbf{B} &= \frac{10}{(100 - \text{AC}_n)} \left[ (\text{SHR}_n) \left\{ (P_{cm}/K_{cm}) - (P_{cs}/K_{cs}) \right\} \right. \\
 &\quad \left. - (\text{SFC}_n) \left\{ (K_{om} \times P_{cm}/K_{cm}) - (K_{os} \times P_{cs}/K_{cs}) \right\} \right]
 \end{aligned}$$

**Where,**

$\text{SFC}_n$  – Normative Specific Fuel Oil consumption in l/kWh

$\text{SHR}_n$  – Normative Gross Station Heat Rate in kCal/kWh

$\text{AC}_n$  – Normative Auxiliary Consumption in percentage

$P_{om}$  – Weighted Average price of fuel oil as per PSL for 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 as per PSL for 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 determination of base energy charge in tariff order in kCal/Kg

46. 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, Development Surcharge and other charges in

accordance with the notification dated 26.3.2001, as applicable. This is subject to the orders, if any, of the superior courts. The petitioner shall also be entitled to recover the filing fee of Rs. 10 lakh paid in the present petition from the respondents in ten equal monthly installments of Rs. one lakh each, payable by the respondents in proportion of the fixed charges. This is subject to confirmation that the amount has not been included in O&M expenses.

47. This order disposes of Petition No 35/2001.

Sd/-  
**(BHANU BHUSHAN)**  
**MEMBER**

Sd/-  
**(K.N. SINHA)**  
**MEMBER**

Sd/-  
**(ASHOK BASU)**  
**CHAIRMAN**

**New Delhi dated the 24<sup>th</sup> August 2004**