

**CENTRAL ELECTRICITY REGULATORY COMMISSION**

**NEW DELHI**

**Coram:**

- 1. Shri D.P. Sinha, Member**
- 2. Shri G.S. Rajamani, Member**
- 3. Shri K.N. Sinha, Member**

**Petition No. 62/2000**

**In the matter of**

Tariff for Talcher Thermal Power Station (460 MW)

**And in the matter of**

National Thermal Power Corporation Ltd .... Petitioner

Vs

Grid Corporation of Orissa Ltd .... Respondent

The following were present:

1. Shri K.K. Garg, GM(Comml.), NTPC
2. Shri R. Datt, AGM (Comml), NTPC
3. Shri R. Mazumdar, Sr. Manager (Comml), NTPC
4. Shri M.L. Khanna, Sr. Manager (OS), NTPC
5. Shri R.K. Mehta, Advocate for GRIDCO
6. Shri B.K. Mohanty, Director (Comml.), GRIDCO
7. Shri S.K. Sahu, AGM(F), GRIDCO
8. Shri G.C. Acharya, DGM (PP-II), GRIDCO
9. Shri K.K. Panda, Liaison Officer, GRIDCO

**ORDER  
(DATE OF HEARING 24.1.2002)**

The Petitioner, NTPC has filed this petition for approval of tariff for the electricity supplied from Talcher Thermal Power Station (hereinafter referred to as "TTPS") to the Respondent, Grid Corporation of Orissa Ltd.

2. TTPS comprising of 6 units, with ultimate capacity of 460 MW (4 x 60 MW and 2x110 MW) was owned by the erstwhile Orissa State Electricity Board (

herein after referred to as "OSEB"). Four units of TTPS of 60 MW each were commissioned during 1967-69 and the remaining two units of 110 MW each were commissioned during 1982-83. The State legislature of Orissa passed the Talcher Thermal Power Station (Acquisition and Transfer) Act, 1994 (hereinafter referred to as "the Act") to provide for acquisition and transfer of TTPS, since, as stated in the preamble to the Act, TTPS had not been able to operate continuously at its optimum capacity due to financial and technical constraints. In terms of Section 3 of the Act, on the appointed day (which was subsequently notified as 3.6.1995), TTPS stood transferred to and vested in the State Government of Orissa. By virtue of notification No. 10503 –P-II.-TTPS-1/1995 dated 1.6.1995 issued by the State Government of Orissa in exercise of powers under Section 5 of the Act, TTPS vested in the State Government under Section 3 of the Act stood further vested in National Thermal Power Corporation Ltd, the petitioner herein, free from all encumbrances on 3.6.1995. Thus, the petitioner became the owner of TTPS with effect from 3.6.1995. The petitioner was liable to pay an amount of Rs.356 crores as a consideration for transfer of TTPS. Prior to vesting of TTPS in the petitioner, the petitioner entered into a tripartite agreement (hereinafter referred to as "the agreement") dated 8.3.1995 with OSEB and the State Government of Orissa, according to which the entire electricity generated from TTPS was to be sold to OSEB. The agreement dated 8.3.1995 was valid for a period of 5 years from the date of take over of TTPS by the petitioner, that is, up to 2.6.2000. The agreement dated 8.3.1995 could be mutually extended, renewed or replaced by another agreement on such terms and conditions for further period as the parties

mutually agree. It was further provided in the agreement that in case OSEB continued to get power from TTPS, even after expiry of the agreement without further renewal or formal extension thereof, then all the provisions of the agreement continued to operate till the agreement was formally reviewed, extended or replaced. The agreement dated 8.3.1995 made certain stipulations as contained in Clause 6, to be taken into account while working out the tariff for the electricity supplied from TTPS. The agreement also provided that for tariff purposes, the value of fixed charges would include the transfer value of Rs.356 crores and any expenditure on renovation and modernisation and any other capital works as and when incurred. The respondent succeeded OSEB by virtue of Section 13 of Orissa Electricity Reforms Act, 1995. Subsequently, on 23<sup>rd</sup> and 24<sup>th</sup> September 1996, meetings were held between the representatives of the petitioner, State Government of Orissa, and the respondent whereat the parties agreed to broad parameters for determination of tariff for the period from the date of take over of TTPS by the petitioner and up to 31.3.2000. The fixed charges and operating parameters for variable charges, agreed to at the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996 applied up to 31.3.2000. As per the decision at these meetings, the operating parameters for variable charges with effect from 1.4.2000 were to be mutually discussed and settled between the petitioner and the respondent. However, pending this settlement, the tariff prevailing as on 31.3.2000 would continue to be billed by the petitioner and paid by the respondent, subject to adjustment retrospectively, with effect from 1.4.2000. The effect of the decisions arrived at in the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September

1996, was to supersede some of the stipulations made in the agreement dated 8.3.1995.

3. In the above background, the petitioner filed the present petition for approval of tariff for the period from 1.4.2000 to 31.3.2005 since meanwhile, the function to regulate tariff of the generating companies owned or controlled by the Central Government came to be vested in the Commission. The Commission granted a number of opportunities to the parties to enable them to arrive at a negotiated settlement on parameters for determination of tariff, but they failed. The Commission has since notified the norms for tariff determination applicable for the period from 1.4.2001 to 31.3.2004. Therefore, in order to keep the tariff period for the energy supplied from TTPS in line with the tariff period decided by the Commission, it was agreed that determination of tariff in the present petition shall be limited to the period up to 31.3.2004.

4. In their submissions before us, the parties had heavily relied upon the stipulations contained in Clause 6 of the agreement dated 8.3.1995 for working out the tariff. Similarly, reliance was also placed on the parameters agreed to between them in the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996. We have already noted that the agreement dated 8.3.1995 was operative up to completion of 5 years from the date of take over of TTPS by the petitioner on 3.6.1995. The agreement dated 8.3.1995, therefore, expired on 2.6.2000. Similarly, the broad parameters for determination of tariff agreed to at the meetings held during

September 1996 were also valid for the period up to 31.3.2000. Therefore, with effect from 1.4.2000, these parameters also ceased to apply. Accordingly, we hold that neither the stipulations contained in Clause 6 of the agreement dated 8.3.1995 nor the parameters agreed to between the petitioner and the respondent in the meetings held during September 1996 could *ipso facto* be applied for determination of tariff for the period from 1.4.2000 to 31.3.2004, though we may consider extending them to the extent they are considered reasonable and relevant.

5. We now propose to consider the capital base and other financial parameters for determination of tariff at the first instance.

**CAPITAL BASE:**

6. It is seen that for the purpose of calculation of, fixed charges as on 3.6.95 i.e. date of take over of TTPS by the petitioner, the capitalised amount of Rs.327.67 crores was agreed to at the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996. Similarly, the capitalised amount of Rs.328.68 crores as on 31.3.1996 was also agreed as the base for calculation of fixed charges. In addition, capitalised initial spares of Rs.11.50 crores for the first year and Rs.14.11 crores for the remaining tariff period were also taken into account for the purpose of calculation of fixed charges.

7. In support of its proposal for determination of tariff for the period from 1.4.2000, the capital cost of Rs.431.83 crores (including capitalised initial spares of Rs.11.50 crores) has been considered by the petitioner, since during the period from 1.4.1996 to 31.3.2000, an additional sum of Rs.91.65 crores is stated to have been spent on creation of capital assets as per the details given hereunder:

(Rs. in Crores)		
As on	Gross Block	Additional capitalisation
31.3.1996	328.678	-----
31.3.1997	357.868	29.190
31.3.1998	391.735	33.867
31.3.1999	414.209	22.474
31.3.2000	420.330	6.121
		-----
TOTAL		91.65
		-----

8. The respondent has objected to capitalisation of following additional capital expenditure during 1996-97 to 1999-2000 for the purposes of arriving at the capital cost as on 31.3.2000 for calculation of tariff, out of total additional capitalisation of Rs.91.65 crores.

a)	Roads and bridges	-	Rs. 2.62 crores
b)	Other buildings excluding main plant	-	Rs. 10.70 crores
c)	Water supply, drainage and sewerage	-	Rs. 1.55 crores
d)	Furniture and fixtures	-	Rs. 4.56 crores
			-----
	TOTAL		Rs. 19.43 crores
			=====

9. According to the respondent, the above expenditure is in the nature of Civil Works, without any corresponding benefit to the consumers. Reliance was placed by the respondent on the Commission's order dated 29.10.2001 in Petition No. 1/2001, (NTPC Vs. Transmission Corporation of Andhra Pradesh and others). In that petition, the petitioner had sought approval of the Commission for treating the renovation and modernisation (R&M) expenditure at par with additional capital expenditure and recovering as a part of tariff like any other capital expenditure or reimbursed as bullet payments. In the order dated 29.10.2001, it was held by the Commission that all kinds of R&M expenditure could not be allowed as "pass through" as additional capital expenditure unless the Commission was satisfied that it would result in corresponding benefit to the ultimate consumer. The Commission further clarified that each case had to be looked into on its own merits considering the impact of R&M expenditure on economy and efficiency of the plant. It has been submitted by the petitioner that the additional expenditure had been incurred to facilitate generation activities by propping up the then existing infrastructure.

10. On consideration of the response of the petitioner, we are satisfied that the additional expenditure on account of R&M was necessary and was not extraneous to the purpose of generation of power. We, therefore, are not satisfied with the objection raised on behalf of the respondent for exclusion of expenditure of Rs.19.43 crores from the capital cost. Accordingly, we allow the petitioner to compute the entire expenditure of Rs.91.65 crores for the period from 1.4.1996 to

31.3.2000 towards capital cost. The respondent has also contested the inclusion of spares @ 5% amounting to Rs.14.11 crores with the gross block of Rs.328.68 crores as on 31.3.1996 taken into consideration for the purpose of tariff. We are not inclined to look into this aspect at this belated stage since the amount had been agreed to by the respondent in the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996 and tariff for the period up to 31.3.2000 had also been determined based on gross block of Rs.328.68 crores for the year 1995-96. Therefore, capital base of Rs.431.83 crores as on 31.3.2000 shall be considered for the purpose of determination of tariff along with the operational parameters as discussed subsequently in this order.

11. While approving tariff for the electricity supplied from TTPS, we have not taken into consideration the depreciated value of the plant and rather have traced the capital base as on 31.3.2000 based on the agreement between the parties in the meetings held during September 1996. Firstly, the depreciated book value of the plant has not been placed on record before us by either of the parties. Also, we find that a capital base of Rs.328.68 crores for the year 1995-96 is acceptable. We are of the opinion that considering the fact that the plant had nearly outlived its useful and economic life at the time of acquisition by the petitioner, a new plant of similar capacity would have called for far more substantial investment. However, in the present case, with the additional R&M expenditure of about Rs.437 crores, considerable improvement in the PLF of the plant is proposed by NTPC. It will result in substantial economic benefit to the respondent and through



it the ultimate consumer. On these considerations we have allowed the capital base of Rs.431.83 crores to be traced from the capital cost of Rs.339.18 crores (including capitalisation of initial spares as on 3.6.1995).

### **DEBT -EQUITY RATIO**

12. The petitioner has claimed tariff by taking a notional debt-equity ratio of 50:50 for the purpose of computation of tariff though the entire capital has been met through its internal resources. The parties are *ad idem* on the proposal and there is no dispute between them on this issue. We, therefore, hold that debt-equity ratio of 50:50 shall be allowed for the purpose of tariff.

### **RATE OF INTEREST ON LOAN**

13. The petitioner has claimed interest @ 14% per annum on the notional debt. According to the respondent, the rate of interest should be based on Prime Lending Rates of the State Bank of India which, according to the petitioner, were 11.25% during 2000-2001 and 11.50% during 2001-2002. It has been further argued that the petitioner had not borrowed any funds for the purpose of this project and therefore, it should not be permitted to charge the exorbitant interest @14% on the notional loan component. The petitioner has placed on record a copy of Ministry of Finance O M dated 1.1.95, according to which the rate of interest on Govt. of India loan applicable to industrial and commercial undertakings in public sector having equity capital exceeding Rs.1 crore, with effect from 1.6.1995 was 16%, which is higher than the rate of interest of 14%

claimed by the petitioner. The petitioner is presumed to have taken loan on the date of acquisition of the plant on 3.6.1995 and in case it had used the capital borrowed @ 16% interest, the respondent would have been in worse position. We are, therefore, satisfied that the rate of interest on notional loan claimed by the petitioner is justified. Accordingly, we allow the petitioner to charge interest @ 14% on the notional loan component of the capital cost for the purposes of tariff. The interest on loan component of fixed charges shall be as under:

<b>2000-01</b>	<b>2001-02</b>	<b>(Rs. in Crores) 2002-03</b>	<b>2003-04</b>
17.96	14.91	11.91	8.89

#### **REPAYMENT OF LOAN**

14. The petitioner has worked out tariff considering repayment of the notional loan in 10 years. However, it has been argued on behalf of the respondent that as per Government of Orissa's notification dated 17.5.95, the repayment of loan was to be made in 5 years. It was clarified on behalf of the petitioner that the Govt. of Orissa's notification was not related to repayment of loan for the purposes of computation of tariff but concerned the payment of balance of dues by the petitioner to the State Government for acquisition of TTPS, after adjustment of outstanding dues. When faced with this, the respondent submitted that repayment of loan in 5 years was agreed to in the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September, 1996. We do not find any such stipulation in the minutes of the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996. Therefore, we direct that for the purpose of calculation of tariff, the repayment period of the notional loan shall be taken as 10

years while calculating tariff for the energy supplied to the respondent from TTPS, as that is the normal period fixed for repayment of loan.

### **RETURN ON EQUITY**

15. The petitioner has claimed return on equity @ 16% on the notional equity of Rs.215.92 crores as on 31.3.2000 as per the agreement dated 8.3.1995. It has been argued on behalf of the respondent that for the purposes of tariff, return on equity of 12% should be considered by the Commission. According to the respondent, the interest rate applicable during 1995-96 was in the range of 16% to 16.5%. Therefore, in order to keep return on equity at par with the applicable rate of interest, ROE of 16% had been agreed to and stipulated in the agreement dated 8.3.1995. However, it is argued by the respondent that since then there is considerable reduction in interest rates. During 2000-2001, SBI PLR was 11.25% whereas during 2001-2002, PLR was 11.50%. Against the above background, the respondent argued in favour of ROE of 12%. We are of the view that the argument raised by the respondent merits rejection. Prior to 1.11.98, Ministry of Power had prescribed ROE of 12%. However, this was increased to 16% with effect from 1.11.1998. The Commission in its order dated 21.12.2000 while laying down the terms and conditions of tariff had also specified ROE of 16%. Therefore, we reject the argument raised on behalf of the respondent for a lower ROE and direct that the petitioner shall be entitled to ROE of 16% per annum on notional equity. ROE component of fixed charges are as given hereunder:

(Rs. in crores)

<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
34.55	34.55	34.55	34.55

### **DEPRECIATION**

16. The petitioner has claimed depreciation @ 8.67% in its petition for approval of tariff. However, in the meetings held on 23<sup>rd</sup> and 24<sup>th</sup> September 1996, depreciation @ 7.14% was agreed to between the parties. Therefore, during the tariff period up to 31.3.2000, the petitioner claimed depreciation @ 7.14%. In the terms and conditions of tariff notified by the Commission and applicable with effect from 1.4.2001, it has prescribed depreciation schedule considering the plant life of 25 years. Under these circumstances, the respondent has argued that for the year 2000-2001, depreciation should be charged @ 7.14% as was being charged prior to that. However, for the subsequent period, the respondent submitted that the depreciation should be charged @ 3.6% as prescribed by the Commission. According to the respondent, it had already agreed to R&M expenditure of Rs.437.00 crores. The effect of R&M expenditure would be to enhance the life of the project by 20 to 25 years. Therefore, the respondent has argued that depreciation @ 3.6% was justified in order to claim 90% of the capital cost of the project in 25 years. We have considered the submissions made on behalf of the parties. We direct that for the year 2000-01, the depreciation shall be charged @ 7.14% as was being charged prior to that period in view of the agreement arrived at between the parties in the meetings held during September 1996. As regards

depreciation for the subsequent periods, we feel that as a result of R&M activity, life of the project will be extended by 20 years, which had nearly outlived its useful and economic life prior to its acquisition by the petitioner. Therefore, 90% of the capital cost of the project is recoverable during 20 years. On that consideration and by applying straight line method for calculation of depreciation, we direct that depreciation shall be charged @ 4.5% during the years 2001-2002 and onwards. The petitioner has already recovered depreciation amounting to Rs.137.29 crores up to 1999-2000. The amount of depreciation already recovered shall be adjusted against the depreciation to be recovered during subsequent years based on this order. Based on the above, depreciation shall be charged as under:

**(Rs. in Crores)**

<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
30.83	19.43	19.43	19.43

**O&M & EXPENSES**

17. In the agreement dated 8.3.1995 it was provided that for the purpose of O&M charges in tariff computation, the current capital cost would be treated as Rs.1380 crores and O&M charges would be equal to 2.5% of Rs.1380 crores i.e. Rs.34.50 crores per year. O&M charges were to be increased @ 10% every year. It was also provided in the agreement dated 8.3.1995 that O&M charges would be reviewed after 5 years keeping in view the actuals. The petitioner has claimed O&M expenses by escalating the expenses of Rs.70.92 crores for the year 1999-2000 @ 10% in every subsequent year. The Commission had provided

opportunities to the parties to discuss the matter and arrive at some agreement in regard to different parameters of tariff including O&M charges. However, the parties could not arrive at a mutually agreed figures as we have already noted. Meanwhile, the Commission in the terms and conditions for tariff notified on 26.3.2001 has provided that O&M expenses including insurance for the existing stations belonging to the petitioner, which had been in operation for 5 years or more in the base year of 1999-2000 shall be derived on the basis of actual O&M expenses, excluding abnormal O&M expenses, if any, for the years 1995-96 to 1999-2000. It is further provided that the average of actual O&M expenses for the years 1995-96 to 1999-2000 shall be considered as O&M expenses for the year 1997-98 and shall be escalated @ 10% per annum to arrive at O&M expenses for the base year 1999-2000. The base expenses for the year 1999-2000 shall be further escalated @ 6% per annum to arrive at permissible O&M expenses for the relevant year.

18. The following are the details of year-wise actual O&M expenses, (Rs. in crores) including the water charges.

<b>1995-96</b>	<b>1996-97</b>	<b>1997-98</b>	<b>1998-99</b>	<b>1999-2000</b>
30.83	46.41	66.19	69.59	76.63

19. It has been argued on behalf of the respondent that O&M expenses for the years 2001-02 to 2003-04, should be worked out in accordance with the notification issued by the Commission, after excluding the abnormal increases of

O&M expenses during 1996-97 and 1997-98 over the expenses of the previous years. The petitioner in its affidavit filed on 5.2.2002, has explained the reasons for abnormal increase in O&M expenses during 1996-97 and 1997-98 over the expenses for the respective previous year. It has been explained that increase is on account of employee cost as a result of revision of pay structure of the employees. It has also been explained that increase is on account of power charges provided for proper illumination of station area and township, increase in travelling expenditure, increase in security expenses and professional expenses, etc. We are satisfied that the increase in O&M expenses during 1996-97 and 1997-98 categorised as “abnormal” by the respondent were not one time expenses but would be recurring year after year and, therefore, justified and beyond the control of the petitioner. We, therefore, allow these expenses to be considered for the purpose of fixation of O&M charges. Accordingly, we direct that O&M charges shall be calculated in accordance with the notification issued by the Commission on 26.3.2001, without excluding any part thereof as “abnormal expenses”. We may notice that actual O&M expenses for the first year for the period from 3.6.95 to 31.3.96 are shown to be Rs.30.33 crores. Therefore, for the purpose of arriving at O&M expenses for the whole year, the actual O&M expenses for the period from 3.6.95 to 31.3.96 shall be increased on pro rata basis. Year-wise O&M charges are worked out as under:

**Operation an Maintenance Expenses for the years 2001-02 to 2003-04**

(Rs. in Crores)

2001-02	2002-03	2003-04
79.69	84.47	89.53

For the year 2000-2001, O&M expenses shall be payable as per the formula agreed between the parties in the PPA. On this basis, the O&M expenses for the year 2000-01 works out to Rs.55.57 crores.

### **INTEREST ON WORKING CAPITAL**

20. The petitioner has claimed the maintenance spares for the working capital @ 40% of O&M expenses. The respondent has submitted that the maintenance spares for the purpose of working capital should be based on actuals of the last five years. We are of the view that the maintenance spares be allowed at actuals, subject to 1% of the capital cost in line with the Commission's notification dated 26.3.2001, which in this case works out to Rs.4.32 cores per annum.

21. The petitioner in its proposal for approval for tariff has claimed interest @ 14% on working capital. However, subsequently, the petitioner revised its proposal and claimed interest @ 12.55%. The respondent has submitted that the interest on working capital should correspond to Prime Lending Rates of State Bank of India, which was 11.50% during 2000-2001 and 2001-2002. At one stage, the respondent had pleaded that the petitioner could be allowed 1% extra over the Prime Lending Rate of State Bank of India, though at subsequent stages, it resiled from this statement and pleaded for lower rates of interest on working capital. On consideration of the totality of the circumstances, we are satisfied that interest on working capital @ 11.50% during 2000-01 to 2003-04 shall be justified. We admit



the claim of the petitioner accordingly. The computed interest on working capital shall be as per under:

<b>Inte rest on Working Capital</b>			
<b>(Rs. in Crores)</b>			
<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
5.54	6.01	6.23	6.46

### **INCOME TAX**

22. On the issue of computation of Income Tax, the respondent has submitted that the petitioner is charging interest on notional loan which should not be deducted for the purpose of calculation of Income Tax. The respondent further argued that the notional interest should be treated as income from other sources and liability of income tax on this account should not be passed on to the respondent. The petitioner has argued that as per the existing practice, the respondent is liable to reimburse the income tax paid by the petitioner since the income is relatable to the project. We have given our anxious thought to the rival contentions. Though there s merit in the arguments of the respondent, it is observed that the Debt/Equity ratio of the petitioner is on normative basis in almost all the old stations of NTPC and hence this problem is common to all such stations. If the suggestion of the respondent is accepted, it will result in the income tax of the station being shared by other stations of the petitioner which will create new issues vis -à-vis other beneficiaries drawing power from NTPC stations. In view of this, the Commission reiterates that the treatment of Income

Tax shall be dealt with as ordered in its order dated 21.12.2000 and notified vide notification dated 26.3.2001.

### **WATER CHARGES**

23. The O&M charges allowed by us are inclusive of water charges. Therefore, water charges are not being allowed separately in tariff.

### **PLF AND OTHER OPERATIONAL PARAMETERS**

24. When TTPS was acquired by the petitioner, it was operating at a very low PLF of about 19%. It becomes obvious from the preamble of the Act that due to financial and technical constraints, TTPS was not operating at its optimum capacity which resulted in loss of generation of electricity. The preamble of the Act further recites that State Government was not in a position to provide additional funds necessary to achieve the optimum production. Therefore, at the time of take over of TTPS by the petitioner, it was agreed that the petitioner would undertake renovation and modernisation (R&M). It has been agreed between the petitioner and the respondent that a total sum of Rs.436.52 crores would be spent on R&M up to October 2003. R&M expenditure shall be capitalised and its impact shall be "pass through" in tariff to be charged from the respondent. Against this background, it has been argued on behalf of the respondent that the benefits accruing as a result of R&M should be available to it in the form of improvement in PLF and other operating parameters. The fixation of PLF and other operating parameters are, therefore, to be decided in the above background

**TARGET AVAILABILITY/TARGET PLF**

25. In the tariff proposal, the petitioner has claimed PLF of 57.50% from 2000-01 to 2003-04. It has been explained on behalf of the petitioner that R&M has been completed only on one unit. When other units of TTPS will be under R&M, it will not be possible to achieve PLF beyond 57.50%. The respondent has argued that normative PLF in respect of TTPS should be as under:

<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
62.78%	65.00%	68.49%	80%

26. The petitioner has placed on record the data relating to PLF actually achieved since the take over of the plant. The relevant details are extracted below:

<b>1995-96</b>	<b>1996-97</b>	<b>1997-98</b>	<b>1998-99</b>	<b>1999-00</b>	<b>2000-01</b>	<b>2001-02</b> (upto 30.11.2001)
29.5%	38.40%	52.00%	55.80%	57.50%	61.76%	66.54%

27. We have also perused the All India performance figures of 60 MW and 110 MW sets of BHEL for the period 1994-95 to 1996-97. We find that PLF is in the range of 45% to 50% and 40% to 43% with operating availability factors of 69% to 75% and 60% to 63% respectively. However, as per CEA performance review of thermal power plants 1996-97, plants having 60 MW sets at Ennore,

Kathagradam and plants having 110 MW sets at Bhatinda TPS, Kota TPS, Sabarmati TPS etc. have achieved a PLF in the range of 58.70% to 67.39% and 67.54% to 82.26% respectively.

28. The petitioner has achieved a PLF of 61.76 % in the previous financial year and there is continuous improvement over the last five years, with one unit out. R&M is expected to be completed by November 2003 when further improvement in PLF is expected. As such we feel that a PLF of 57.5% proposed by the petitioner in its tariff proposal is unreasonable. We, therefore, order the following Target Availability and Target PLF for the purpose of payment of full fixed charges and incentive respectively for the period from 2000-01 to 2003-04:

<b>Year</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Target Availability/Target PLF	61.76%	65.00%	70.00%	75.00%

29. We are also of the view that for the purpose of computation of PLF, the period of units under R&M shall not be reckoned and relatable fixed charges for the unit under R&M shall not be paid for and method of computation of fixed charges and incentive shall be in terms of the Commission's notification dated 26.3.2001, but with Target Availability/Target PLF indicated above.

**STATION HEAT RATE:**

30. The petitioner has claimed station heat rate of 3300 Kcal/kWh. Per contra, the respondent has argued in favour of adoption of station heat rate of 2500 Kcal/kWh. The petitioner has explained that it is not possible to achieve the

station heat rate as argued by the respondent for the unit sizes of 60 MW and 110 MW. The actual station heat rate achieved by the plant during 1999-2000 is 3148 Kcal/kWh. The station heat rate of 2500 Kcal/kwh is applicable to the units with capacity of 210/500 MW and cannot be applied in case of generating units of smaller size of 60 MW/110 MW. Nevertheless, we find consistent improvements in station heat rate since take over of the plant by the petitioner, as may be seen from the following data of Station Heat Rate submitted by the petitioner.

(Station heat rate in Kcl/kWh)

<b>1995-96</b>	<b>1996-97</b>	<b>1997-98</b>	<b>1998-99</b>	<b>1999-2000</b>	<b>2000-01</b>
3882	3694	3442	3257	3192	3148

31. In our view, the station heat rate depends on the loading of the units. As per the design data of Kota TPS, Muzaffarpur TPS and Durgapur TPS the unit heat rate at 100% loading works out to 2850 Kcal/kWh for 110 MW units. Similarly, as per the design data of 60 MW sets of Faridabad TPS the unit heat rate at 100% loading works out to about 3040 Kcal/kWh. Considering unit loading of 80% and above, an average station heat rate of 3100 Kcal/kWh should be possible to be achieved and appears to be justified. Therefore, we allow following station heat rate for the period 2000-01 to 2003-04:

<b>Year</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
Station Heat rate (Kcal/kWh)	3200	3100	3100	3100

**AUXILIARY ENERGY CONSUMPTION:**

32. On the issue of auxiliary energy consumption the respondent has pleaded for the auxiliary energy consumption of 9.5%. The actual data shows that auxiliary

energy consumption has varied from 11.66% to 12.92% during the period of operation since the date of take over of the plant by the petitioner. We feel that the auxiliary consumption at part load operation to be more than at full load. Therefore, auxiliary consumption of 11% should be reasonable for the year 2001-02 and onwards. However for the year 2000-01, auxiliary consumption of 11.75% is allowed based on actuals.

**SPECIFIC FUEL OIL CONSUMPTION:**

33. In the proposal for tariff, the petitioner has adopted specific oil consumption of 7 ml/kWh. Following data of actuals on specific fuel oil consumption are available on record:

1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01
18.69	10.67	4.01	3.28	3.04	2.76

34. The respondent has argued for adoption of specific fuel oil consumption of 3.50 ml/kWh based on norms notified by the Commission. We feel that the petitioner is asking for too much margin on this parameter. The petitioner has stated that for 210/500 MW units, a norm of 5 ml/kWh is allowed during stabilization period. We are unable to agree with the petitioner as this is only for a six month period. We, therefore, allow a specific fuel oil consumption of 3.5 ml/kWh giving the petitioner sufficient operating margin against actual specific oil consumption of 2.76 ml/kWh. .

35. In view of above, fixed charge and energy charge during the tariff period shall be charged as specified below:

Year	2000-01	2001-02	2002-03	2003-04
Fixed Charges (Rs.Cr.)	144.45	154.59	156.59	158.86
Energy Charges (Paisa/kwh) on kW hr sent out basis	50.21	48.37	48.37	48.37

36. The above energy charges are based on weighted average GCV and weighted average price of coal & oil worked out for the months of January 2000, February 2000 & March 2000 as on 31.3.2000 and shall be subject to fuel price adjustment in terms of CERC's notification dt.26.3.2001.

37. The details of fixed charges are summarised as under:

38.

	(Rs. in Crores)			
	2000-01	2001-02	2002-03	2003-04
Interest on loan	17.96	14.91	11.91	8.89
Depreciation	30.83	19.43	19.43	19.43
Operational and Maintenance Expenses	55.57	79.69	84.47	89.53
Interest on working capital	5.54	6.01	6.23	6.46
Return on equity	34.55	34.55	34.55	34.55
<b>TOTAL</b>	<b>144.45</b>	<b>154.59</b>	<b>156.59</b>	<b>158.86</b>
	=====	=====	=====	=====

39. The details of computation of energy charge are given here under:

**CALCULATION OF RATE OF ENERGY CHARGE**

Sr.No.	Description	Formula				
		2000-2001	2001-02	2002-03	2003-04	
1	Gross Station Heat Rate (kCal/kWh)	3200.00	3100.00	3100.00	3100.00	
2	Auxilliary Energy Consumption (%)	11.75	11.00	11.00	11.00	
3	Specific Fuel Oil (ml/kWh)	3.50	3.50	3.50	3.50	
4	Weighted Average Price of Coal (Rs./MT)	437.28	437.28	437.28	437.28	
5	Weighted Average GCV of Coal (kCal/Kg)	3464.51	3464.51	3464.51	3464.51	
6	Weighted Average Price of Oil (Rs./KL)	12361.15	12361.15	12361.15	12361.15	
7	Weighted Average GCV of Oil (kCal/Lit.)	9235.00	9235.00	9235.00	9235.00	
8	Rate of Energy Charge from Sec. Fuel Oil/ Alternate Fuel (Paise/kWh Generated) - (REC) <sub>s</sub>	$(Q_s)_n \times P_s$	4.33	4.33	4.33	4.33
9	Heat Contribution from SFO / Alternate Fuel (kCal/kWh Generated) - (H) <sub>s</sub>	$(Q_s)_n \times (GCV)_s$	32.32	32.32	32.32	32.32
10	Heat Contribution from Coal/Primary Fuel (kCal/kWh Generated) - (H) <sub>p</sub>	GHR- H <sub>s</sub>	3167.68	3067.68	3067.68	3067.68
11	Specific Coal/ Primary Fuel Consumption (Kg./kWh Generated)- (Q <sub>p</sub> ) <sub>n</sub>	$H_p / (GCV)_p$	0.914	0.885	0.885	0.885
12	Rate of Energy charge from Primary Fuel (Paise/kWh Generated) - (REC) <sub>p</sub>	$(Q_p)_n \times P_p$	39.98	38.72	38.72	38.72
13	Rate of Energy charge ex - bus (Paise/kWh sent out)-(REC)	$((REC)_s + (REC)_p) / (1-(AUX))$	50.21	48.37	48.37	48.37
The computations are based on fuel data for the last three preceeding months i.e. Jan.,2000, Feb.,2000 & March, 2000+B18.						

39. The matters not specifically covered in this order, but for which provisions are made in the Commission's notification dated 26.3.2001, shall be governed by that notification.

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

Sd/-  
**(G.S. RAJAMANI)**  
**MEMBER**

Sd/-  
**(D.P. SINHA)**  
**MEMBER**

New Delhi dated 19<sup>th</sup> June, 2002