

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

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

Petition No 44/2001

In the matter of

Approval of tariff in respect of Dadri Gas 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. Uttar Pradesh Power Corporation Ltd., Lucknow
2. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
3. Delhi Vidyut Board, New Delhi
4. Haryana Vidyut Prasaran Nigam Ltd, Panchkula
5. Punjab State Electricity Board, Patiala
6. Himachal Pradesh State Electricity Board, Shimla
7. Power Development Department, Govt. of J&K, Srinagar
8. Power Department Union Territory of Chandigarh, Chandigarh
9. Uttaranchal Power Corporation Ltd., Dehradun

..**Respondents**

The following were present

1. Shri K.K. Garg, GM (C), NTPC
2. Shri V.B.K. Jain, GM (Comml), NTPC
3. Shri M.S. Chawla, AGM (Comml), NTPC
4. Shri R.Singhal, Mgr (C), NTPC
5. Shri A.K. Poddar, NTPC
6. Shri T.R. Sohal, NTPC
7. Shri Ajay Dua, Mgr (C), NTPC
8. Shri S.D. Jha, NTPC
9. Shri M.G. Ramachandran, Advocate, NTPC
10. Shri J.S. Bhargava, AEN (JSP) RRVPNL
11. Shri K.K. Mittal XEN (ISP), RRVPNL
12. Shri T.P.S. Bawa, Superintending Engineer, PSEB
13. Shri V.K. Gupta, PSEB
14. Shri D.D. Chopra, Advocate, UPPCL
15. Shri T.K. Srivastava, UPPCL
16. Shri R.K. Arora, HVPN

ORDER
(DATE OF HEARING 28-8-2003)

This petition has been filed by the petitioner, NTPC, a generating company owned by the Central Government for approval of tariff for Dadri Gas Power Station, (hereinafter referred to as “Dadri GPS ”) 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. Dadri GPS with capacity of 829.78 MW, comprises of 2 modules, each with a capacity of 414.89 MW . Dadri GPS was declared under commercial operation on 1.4.1997, though GT I of the first module was commissioned on 1.5.1992. The tariff for the station valid for a period up to 31.3.1999 was earlier notified by Ministry of Power vide its notification dated 5.5.1999. The tariff for the period from 1.4.1999 to 31.3.2001 was approved by the Commission vide its order dated 30.6.2003 in petition No 95/2002, wherein the Commission considered additional capitalisation up to 31.3.2001 in tariff order.

3. 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	4934	4370	3877
2	Interest on Working Capital	3064	3254	3463
3	Depreciation	4852	4864	4873
4	Advance against Depreciation	0	0	0
5	Return on Equity	6994	7012	7024
6	O & M Expenses	4474	4742	5027
7.	Water Charges	28	28	28
	TOTAL	24346	24270	24292

4. 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	4677	4991	5326
HSD Stock	2780	3248	3795
O & M expenses	373	395	419
Spares	1790	1897	2011
Receivables	14060	14676	15351
Total Working Capital	23679	25208	26902
Working Capital Margin (WCM)	3609	3609	3609
Total Working Capital allowed	20070	21599	23293
Rate of Interest	12.35%	12.35%	12.35%
Interest on allowed Working Capital	2479	2667	2877
Interest on WCM	297	298	298
Return on WCM	289	289	289
Total Interest on Working capital	3064	3254	3463

5. In addition, the petitioner has claimed Energy Charges @ 95.14 paise/kWh (without Nox) and @ 96.28 paise/kWh (with Nox) for the period from 1.4.2001 to 31.3.2004 based on natural gas and @ 365.34 paise/kwh (without Nox) and 369.69 paise/kwh (with Nox) based on HSD.

CAPITAL COST

6. As per the notification dated 26.3.2001, the actual capital expenditure incurred on completion of the generating station shall be the criterion for fixation of tariff. It is further provided that 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.

7. The petitioner has claimed tariff by taking the opening gross block of Rs.87375.00 lakh. The Commission vide its order dated 30.6.2003 in Petition No.95/2002 has approved the tariff for the period 1.4.1999 to 31.3.2001 by considering a closing capital cost of Rs.86633.00 lakh, as on 31.3.2001. This 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. 161.00 lakh, Rs. 280.00 lakh and Rs. 20.00 lakh for the years 2001-02, 2002-03 and 2003-04 respectively, based on budgetary projections. The additional capitalisation for the period from 1.4.2001 to 31.3.2004 claimed by the petitioner has not been considered for tariff determination since the claim of the petitioner which is based on budgetary projections and not on actual expenditure and, therefore, is not in line with the notification dated 26.3.2001. However, as a precautionary measure, the petitioner may keep its purchasers informed that they can keep a provision for additional capitalisation arrears on ad hoc basis in their ARR. Accordingly, the capital cost of Rs.86633.00 lakh has been considered for the purpose of tariff determination. 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

8. 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.

9. Ministry of Power, while notifying tariff vide its notification dated 5.5.1999 had considered the normative debt-equity ratio of 50:50. The debt-equity ratio of 50:50 was adopted by the Commission in its order dated 30.6.2003 in Petition No. 95/2002, while approving tariff for the period from 1.4.1999 to 31.3.2001. Therefore, for the purpose of the present petition, debt-equity ratio of 50:50 has been adopted in the working.

TARGET AVAILABILITY

10. Based on the notification dated 26.3.2001, full fixed charges are recoverable at the target availability of 80%. The petitioner has prayed for relaxation in Target Availability and has prayed that “the target availability of 80% should be considered on the basis of availability of machines which means that the difference between 80% availability and the declared capacity based on actual availability of fuel (gas plus naphtha) be treated as deemed availability for recovery of full fixed charges, subject to machine availability being 80% till the adequate Gas supply is made available to NTPC Gas station”. The prayer amounts to relaxation of target availability level prescribed in the notification dated 26.3.2001.

11. The issue was deliberated during the hearing on 21.3.2003. The petitioner had stated that full fixed charges were payable in the previous tariff period at 62.79% PLF (actual PLF plus deemed generation). We have considered the matter. Earlier, there was a shortage of gas. The availability of gas has, however, improved

considerably in the recent past. With the improvement in supply of gas, the petitioner has been able to achieve a PLF of 71% for this station, 73.5% at Auraiya GPS and 74.7% at Anta GPS. In view of the improved availability of gas and attainment of PLF of 71%, the question of fixing lower level of target availability should not arise. Accordingly, no case for relaxation of target availability as prayed for is made out. Therefore, full fixed charges are payable at target availability of 80%.

RETURN ON EQUITY

12. As per the notification dated 26.03.2001, 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 on equity @ 16%. The respondents have, however, submitted that that return on equity should be payable @ 12%. 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. We may take notice of the fact that while approving tariff for the period from 1.4.1999 to 31.3.2001, the Commission had allowed return @ 16% per annum.

13. The respondents have submitted that the tariff for the generating stations belonging to the petitioner were notified by 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.

14. 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:

Particulars	(Rs in lakh)		
	2001-02	2002-03	2003-04
Opening Balance	43316	43316	43316
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
Closing Balance	43316	43316	43316
Average	43316	43316	43316
Rate of Return on Equity	16.00%	16.00%	16.00%
Return on Equity	6931	6931	6931

INTEREST ON LOAN

15. As per the notification dated 26.03.2001, 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.

16. The fixed charges for the period prior to 1.4.2001 were allowed on normative debt. Therefore, normative loan amount has been worked out by considering debt and equity in the ratio of 50:50 as already decided. The salient features of computation of interest on loan allowed in tariff are summarised below:

(a) The gross opening normative loan amount and the cumulative repayment of loan up to 31.3.2001 have been taken as per the Commission' order dated 30.6.2002 in petition No. 95/2002. The relevant details considered in this regard are extracted below:

(Rs. in lakh)		
Loan	1999-2000	2000-2001
Gross loan-Opening	43158	43295
Cumulative repayments of Loans upto previous year	7105	10422
Net loan-Opening	36052	32872
Increase/ Decrease due to FERV	0	0
Increase/ Decrease due to Additional Capitalisation	137	22
Total	36189	32894
Repayments of Loans during the year	3317	3331
Net loan-Closing	32872	29563
Average Net Loan	34462	31218
Rate of Interest on Loan	16.12%	16.07%
Interest on loan	5555	5017

(b) The annual repayment amount for the years 2001-02 to 2003-04 has been worked out as per the methodology followed earlier for the period prior to 1.4.2001. The annual repayment amount calculated is based on the actual repayment during the year or repayment calculated in accordance with 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,

- (c) 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 to the normative average loan during the year to arrive at the interest on loan amount.
- (d) The loan draws up to 31.3.2001 have been considered.

17. The computations of interest by applying the methodology indicated in the preceding para are appended hereinbelow:

COMPUTATION OF INTEREST ON NOTIONAL LOAN

(Rs. in lakh)

	2001-02	2002-03	2003-04
Gross loan-Opening	43316	43316	43316
Cumulative repayments of Loans up to previous year	13753	19013	22861
Net loan-Opening	29563	24304	20455
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
Total	29563	24304	20455
Repayments of Loans during the year	5259	3848	3851
Net loan-Closing	24304	20455	16604
Average Net Loan	26933	22379	18530
Rate of Interest on Loan	16.24%	16.48%	16.48%
Interest on loan	4374	3688	3054

DEPRECIATION

18. 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.

19. The weighted average depreciation rate for the tariff period has been calculated by taking the individual assets of gross block as on 31.3.2001 and the respective depreciation rates as per the notification dated 26.03.2001. The weighted average depreciation rate works out as 5.54 % as against 5.55 % claimed in the petition. The depreciation recovered in tariff up to 31.3.2001 has been taken as per the Commission' order dated 30.6.2003 in petition no. 95/2002.

20. Depreciation has been allowed at opening gross block of Rs. 86633.00 lakh. The petitioner is entitled to an amount of Rs.4798.00 lakh each year during the tariff period on account of depreciation. The necessary calculations in support of the amount of depreciation allowed are given hereunder:

(Rs. in lakh)

	2001-02	2002-03	2003-04
Capital Cost			
Capital Cost upto 31.3.2001 as per the Commission's order dated 30.6.2003			
Opening Balance	86633	86633	86633
Increase/ Decrease due to FERV	0	0	0
Increase/ Decrease due to Additional Capitalisation	0	0	0
Closing Balance	86633	86633	86633
Rate Of Depreciation	5.54%	5.54%	5.54%
Depreciation recovered in tariff	4798	4798	4798
AAD recovered in tariff	0	0	0
Depreciation/AAD recovered in tariff	4798	4798	4798
Cumulative Depreciation/AAD recovered in tariff	47423	52221	57019

ADVANCE AGAINST DEPRECIATION

21. 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 1/12th of original loan amount minus depreciation as per schedule.

22. The actual gross loan and actual repayment as on 1.4.2001 have been considered for computing Advance Against Depreciation. The petitioner is not entitled to claim any Advance Against Depreciation as shown below:

(Rs. in lakh)			
	2001-02	2002-03	2003-04
1/12 th of Loan(s)	3610	3610	3610
Scheduled Repayment of the Loan(s)	5259	3848	3851
Minimum of the above	3610	3610	3610
Depreciation during the year	4798	4798	4798
Advance Against Depreciation	0	0	0

O&M EXPENSES

23. As per the notification dated 26.03.2001, operation and maintenance (O&M) expenses, including insurance for the stations belonging to the petitioner, in operation for 5 years or more in the base year of 1999-2000, are derived on the basis of actual O & M expenses, excluding abnormal O & M expenses, if any, for the years 1995-1996 to 1999-2000 duly certified by the statutory auditors. The average of actual O & M expenses for the years 1995-1996 to 1999-2000 is considered as O & M expenses for the year 1997-1998 which is escalated twice at the rate of 10% per annum to arrive at O & M expenses for the base year 1999-2000. Thereafter, the base O & M expenses for the year 1999-2000 are further escalated at the rate of 6% per annum to arrive at permissible O & M expenses for the relevant year. The notification dated 26.3.2001 further provides that if the escalation factor computed from the observed data lies in the range of 4.8% to 7.2%, this variation shall be absorbed by the petitioner. In case of deviation beyond these limits, adjustment shall be made by applying actual escalation factor arrived on the basis of weighted price index of CPI

for industrial workers (CPI_IW) and index of selected component of WPI(WPIOM) for which the petitioner shall approach the Commission with an appropriate petition. The notification dated 26.3.2001 thus implies that the variations between $\pm 20\%$ over the previous year's expenses are to be absorbed by the petitioner.

24. As per the petitioner, O&M expenses for the years 1995-96 to 1999-2000 are as follows:

(Rs. in lakh)					
Year	1995-96	1996-97	1997-98	1998-99	1999-00
O&M	1403.42	1734.89	2486.58	2798.04	4478.17
Water Charges	0.00	0.00	7.29	16.42	17.81
Total O&M without Water charges	1403.42	1734.89	2479.29	2781.62	4460.36

25. The petitioner's claim on account of O&M expenses has been examined in terms of the notification dated 26.3.2001 as discussed in the succeeding paragraphs.

Employee Cost:

26. The petitioner has indicated following amounts under this head for 1995-1996 to 1999-2000: -

(Rs. in lakh)				
1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
362.78	357.91	549.43	758.74	910.53

27. There has been increase of 53.5% in the year 1997-1998 over the expenses for the previous year and 38.1% in the year 1998-1999 over those for 1997-1998. The petitioner has clarified that the increase is on account of pay revision of employees,

due from 01.04.1997 and therefore a provision was kept in 1997-1998 for higher wages to employees. The increase in 1998-1999 is also stated to be due to pay revision. The petitioner has also claimed incentive and ex gratia paid to the employees under the head "employee cost". The petitioner has clarified that incentive and ex gratia payments are under the productivity linked bonus scheme. The respondents have contested that incentive and ex gratia should not be included in the employee cost, should be payable from the incentive earned by the petitioner and should not be charged from beneficiaries in the O&M cost. The Commission's policy in this regard is to allow only the obligatory minimum bonus payable under the Payment of Bonus Act. We find force in the contention raised on behalf of the respondents that incentive and ex gratia should be paid out of the incentive earned by the petitioner on account of higher productivity achieved. As such, the following amount of incentive and ex gratia has not been considered for arriving at the normalised O&M expenses for the purpose of tariff:

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
18.5	29.6	31.3	94.2	56.10

Repair & Maintenance

28. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
483.60	660.44	676.65	513.64	1719.54

29. There has been an increase of 36.6% in the year 1996-1997 over the previous year's expenses and 234.8% in the year 1999-2000. The petitioner has clarified that this increase in the year 1996-1997 is due to overhauling of all GTs and the increase in the year 1999-2000 is due to repair of GT-4 and GT-1 generator rotor. The periodic overhaul of gas turbine hot path is normal feature, but break down of generator rotor cannot be a regular feature. The expenditure of 705 lakh during 1999-2000 on account of repair of GTs cannot be considered in the normalised O&M charges. Even after disallowing this, expenditure to the tune of 500 lakh on the major overhaul of two GTs is on the higher side as compared to Rs. 177 lakh spent on overhauling in the year 1996-1997 on three GTs. Considering escalation @ 20%/year this roughly works out to of the order of 250 lakh. Therefore, an amount of $(1.2 \times 513.64 + 250) = 866.37$ lakh could be considered for the year 1999-2000 against the total expenditure of Rs.1719.54 lakh. Since Steam turbine units were commissioned only in 1996-1997 and 1997-1998, the Repair & Maintenance figures of 1995-1996 and 1996-1997 are not considered the true representative of the expenditure and have not been considered. As such, the following Repair & Maintenance expenses for the years 1997-1998 to 1999-2000 have been considered for normalisation based on 3 years average.

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
0	0	676.65	513.64	866.37

30. The petitioner has further prayed for recovery of additional expense likely to be incurred due to consumption of major spares after warranty period as additional O&M cost over and above what is claimed in the petition for the period 2001 to 2004.

31. The issue was deliberated during the hearing on 21.3.2003. The petitioner submitted that the details of O&M expenses furnished by the petitioner did not include cost of spares, which were replaced free of cost by the manufacturer for a period of 10 years after installation of the machines. The petitioner had to incur expenditure on procurement of such spares after the expiry of warranty period of 10 years and therefore, an additional provision for O&M expenses on account of procurement of spares was required to be made. The Commission had directed the petitioner to file details of the notional cost of the spares supplied by the manufacturer free of cost along with the equipment/machinery as also the firmed up future requirements for spares. The petitioner has furnished the following details of notional spares supplied free of cost under the agreement with the manufacturer:

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	Total
1625	2877	1078	20	2360	6558	2553	1681	18752

32. GT-I is in operation since May 1992. However, the details of warranty spares have been furnished for 8 years. The value of warranty spares supplied in these years is 18752 lakh, that is, Rs. 2344 lakh per year. This is substantial and therefore, it is difficult to hold that the project cost quoted by the bidders would not be including cost of these spares to be supplied free of cost over 10 years period. By any conservative estimates, the project cost is expected to include an amount of Rs. 240 to 300 Crs for the warranty spares, on which amount the petitioner is getting return on equity and depreciation which should take care of spares equivalent to warranty spares. In view of this, it would not be appropriate to consider additional cost in O&M for the consumption of the spares.

Stores

33. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000:-

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
0.02	4.97	52.17	66.69	56.41

34. There has been an increase of 949.7% in the year 1997-1998 over the previous year's expenses under this head and 27.8% in the year 1998-1999. As clarified by the petitioner, allocation was made partly in 1996-1997 since part of the unit was declared commercial and in 1997-1998 all the units were declared commercial, allocation based on sales was made. Overall increase for Dadri Gas and Dadri Thermal in 1997-1998 is only 3% and in 1998-1999 the increase is 19%. There is a common store for both Dadri Thermal and Dadri GPS and respective allocation is done each year. Since steam turbine units were commissioned only in 1996-1997 and 1997-1998, the store consumption figures of 1995-1996 and 1996-1997 are not considered to be true representative and have not been taken into account. As such, consumption figures for the years 1997-1998 to 1999-2000 have been considered for normalisation based on 3 years average.

Power Charges

35. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000: -

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
33.08	36.52	41.96	55.69	70.97

36. There has been an increase of 32.7% in 1998-1999 and an increase of 27.4% in 1999-2000 over the respective previous year's expenses. As clarified by the petitioner, The total power charges for the petitioner's generating stations at Dadri are being apportioned between Dadri Thermal and Dadri GPS on the basis of sales ratio. The increase in power charges of Dadri Gas is due to increase in generation at the station. Since power charges are independent of capacity of plant, amounts as indicated by the petitioner in respective year have been considered to arrive at normalised O&M charges

37. The respondents have questioned the admissibility of power charges claimed by the petitioner. The respondents have contended that the claim results in double payment by them as they are paying separately for auxiliary consumption on normative basis. On the issue, the petitioner has explained during the hearings that these power charges pertain to colony power consumption taken directly from the power stations and do not include any construction power. However, the charges booked under O&M are only the energy charges and fixed charges are not claimed. It has been further clarified that the payment received from the employees for the power consumed in residential quarters is credited to the revenue account and only net power charges for colony power consumption is charged to O&M. As such, there is no double payment by the respondent-beneficiaries. It is contended by the petitioner that in case the power had been procured from the state utility, then also power charges for the colony infrastructure would have been booked under O&M. We are satisfied with the explanation furnished by the petitioner.

Water Charges

38. The petitioner has indicated the following amounts under this head for the years 1995-1996 to 1999-2000:-

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
0.00	0.00	7.29	16.42	17.81

39. There has been an increase of 125.2% in 1998-1999 over the previous year's expenses. The petitioner has clarified that the increase is on account of hike in royalty charges from Rs. 50000 to Rs.150000 per cusec per annum since June 1998. We have considered the submission. The amounts as indicated by the petitioner for the years 1998-1999 and 1999-2000 have been considered to arrive at normalised O&M charges based on two years' average expenses.

Communication expenses

40. The petitioner has indicated following amounts under this head for 1995-1996 to 1999-2000

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
11.96	7.68	10.63	15.81	15.29

41. There has been an increase of 38.4% and 48.7% in the years 1997-1998 and 1998-1999 over the previous years. The petitioner has clarified that the increase in 1997-1998 is due to installation of additional telephones and in the year 1998-1999 is due to increase in telephone charges. We accept the explanation given by the petitioner. Therefore, amounts as indicated by the petitioner have been considered to arrive at normalised O&M charges.

Travelling Expenses

42. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000:-

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
6.89	9.06	66.75	85.58	88.82

43. There has been an increase of 31.5% , 636.8% and 28.2% in the years 1996-1997,1997-1998 and 1998-1999 over the respective previous year. The petitioner has clarified that travelling expenses are being first booked in thermal station books and are subsequently allocated to Dadri GPS and Dadri NCTPS in the ratio of sales. During the year 1996-1997, no allocation of expenditure was made and entire expenditure was booked against Dadri NCTPS. However, since 1997-1998, the travelling expenditure is being allocated to Dadri GPS in the ratio of sales. The increase in 1998-1999 is due to increase in overall expenditure on travelling (due to increase in conveyance allowance, promotions and general inflationary trends) and also additional allocation to Dadri GPS due to comparative increase in sales at the station vis-à-vis Dadri NCTPS. In view of the explanation, amounts as indicated by the petitioner for the years 1997-1998 to 1999-2000 have been considered to arrive at normalised O&M charges based on 3 years' average.

Insurance Expenses

44. The petitioner has indicated following amounts under this head for 1995-1996 to 1999-2000:-

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
14.29	76.18	279.01	252.55	224.65

45. There has been an increase of 433.1% and 266.3% in the year 1996-1997 and 1997-1998 over the previous year's expenses. The petitioner has clarified that the unit was partly capitalised in 1996-1997, resulting an increase of 433% over 1995-1996. The unit was declared fully commercial in 1997-1998, Since steam turbine units were commissioned only in 1996-1997 and 1997-1998, the insurance expenses for the year 1995-1996 and 1996-1997 are not true representative and have not been considered. As such, insurance expenses for the years 1997-1998 to 1999-2000 have been considered for normalisation, based on 3 years' average.

Security Expenses

46. The petitioner has indicated the following amounts under the head "security expenses" for 1995-1996 to 1999-2000:-

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
79.53	78.54	89.85	137.47	169.56

47. There has been increase of 53% and 23.3% in 1998-1999 and 1999-2000 over the expenses for the respective previous year. The petitioner has clarified that the increases are due to more deployment of CISF personnel keeping in view the security needs and revision of pay as per V Pay Commission recommendations. The increases are on account of obligatory expenses and as such, the amounts as indicated by the petitioner have been considered to arrive at normalised O&M charges.

Professional Expenses

48. The petitioner has submitted the following details of the amounts under the head "professional expenses" for 1995-1996 to 1999-2000: -

(Rs. in lakh)

1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
0.33	0.51	1.22	2.55	4.12

49. There is an increase of 54.5% , 139.2% , 109% and 61.6% for the years 1996-1997,1997-1998, 1998-1999 and 1999-2000 over the expenses for the respective previous year. The petitioner has clarified that the increase is due to the contract awarded for physical verification of fixed assets/ stores. Since the amounts indicated are small, the same have been considered to arrive at normalised O&M charges.

Printing & Stationery

50. The petitioner has indicated the following amounts under this head for 1995-1996 to 1999-2000: -

(Rs. in lakh)				
1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
10.68	10.00	11.12	15.28	13.82

51. There has been an increase of 37.4% in the year 1998-1999 over the previous year's expenses. The petitioner has clarified that the increase in 1998-1999 is because of bulk purchase of stationery. In view of the explanation furnished, the amounts as indicated by the petitioner have been considered to arrive at normalised O&M charges.

Corporate Office Expenses

52. The petitioner has made the following allocation of corporate office expenses to the station for 1995-1996 to 1999-2000: -

(Rs. in lakh)				
1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
300.22	342.62	481.38	594.07	835.76

53. As clarified by the petitioner, the expenses common to Operational and Construction activities are allocated to Profit and Loss Account and Incidental

Expenditure during Construction in proportion of sales to annual capital outlay. The corporate office expense details furnished by the petitioner are those charged to revenue only. These corporate office and other common expenses chargeable to revenue are allocated to the projects on the basis of sales.

54. It has been further clarified by the petitioner that the increases are on account of the increases due to wage revision and increase in travelling expenses of the corporate office employees. As discussed above, in the case of project employee cost, the increases on account of wage revision have been allowed for calculation of the normalised O&M expenses after deducting incentive and ex gratia. Similarly, in case of corporate office expenses also, the incentive and ex gratia have not been considered in direct employee expenses.

55. Schedule 13 of the Company balance sheets for different years reveals Rs. 55 lakh, Rs.0.40 lakh, Rs. 85 lakh and Rs. 2800 lakh as donations for the years 1996-1997 to 1999-2000 respectively, the donations were made for the benefit of society or for some social cause for which the petitioner deserves appreciation, donations cannot be directly attributed to the business of power generation, the activity in which the petitioner is engaged. Accordingly, these donations cannot be passed on to the beneficiaries. Therefore, the donation amounts have not been considered in the corporate office expenses.

56. After excluding the proportionate amount for incentive, ex gratia, and donations, the following amounts in the corporate office expenses in respective year have been considered towards the normalised O&M expenses for the station:

					(Rs. in lakh)
Year	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
Amount	288.73	325.74	468.38	557.90	684.38

Other Expenses

57. The petitioner has allocated following amounts to the station under this head for 1995-1996 to 1999-2000:-

					(Rs. in lakh)
1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	
100.04	150.46	219.12	283.55	350.89	

58. There has been an increase of 50.4%, 45.6%, 29.4% and 23.7% in the years of 1996-1997, 1997-1998, 1998-1999 and 1999-2000 over the respective previous year. The petitioner has furnished that the increase is due to more tree plantation and horticulture expenses to meet statutory obligations. The plant was declared under commercial operation in 1997-1998. Such plantation expenses are undertaken usually after completion of the construction activity. The amount as indicated by the petitioner has been considered to arrive at normalised O&M charges for 1997-1998 to 1999-2000 as the figures of 1995-1996 to 1996-1997 are not being treated as true representative figures.

59. Under all other heads, increases are within the permissible limit of 20%. Therefore, amounts indicated by the petitioner have been considered to arrive at the normalised O&M charges.

60. A comparative tabular statement of the year-wise O&M expenses claimed by the petitioner and allowed by us is extracted hereunder:

		1995-1996		1996-97		1997-1998		1998-1999		1999-2000		1995-1996 to 1999-2000	
		Claimed	Allowed	Claimed	Allowed	Claimed	Allowed	Claimed	Allowed	Claimed	Allowed	Average As Claimed	Average as Allowed
1	Employee cost	362.78	344.30	357.91	328.20	549.43	518.20	758.74	664.60	910.53	854.40	587.88	541.94
2	Repair and Maintenance	483.60	0.00	660.44	0.00	676.65	676.65	513.64	513.64	1719.54	866.37	810.77	685.55
3	Stores consumed	0.02	0.00	4.97	0.00	52.17	52.17	66.69	66.69	56.41	56.41	36.05	58.42
4	Power charges	33.08	33.08	36.52	36.52	41.96	41.96	55.69	55.69	70.97	70.97	47.64	47.64
5	Water Charges	0.00	0.00	0.00	0.00	7.29	0.00	16.42	16.42	17.81	17.81	8.30	17.12
6	Communication expenses	11.96	11.96	7.68	7.68	10.63	10.63	15.81	15.81	15.29	15.29	12.27	12.27
7	Travelling expenses	6.89	0.00	9.06	0.00	66.75	66.75	85.58	85.58	88.82	88.82	51.42	80.38
8	Insurance	14.29	14.29	76.18	76.18	279.01	279.01	252.55	252.55	224.65	224.65	169.34	252.07
9	Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Security expenses	79.53	79.53	78.54	78.54	89.85	89.85	137.47	137.47	169.56	169.56	110.99	110.99
11	Professional expenses	0.33	0.33	0.51	0.51	1.22	1.22	2.55	2.55	4.12	4.12	1.75	1.75
12	Printing & Stationary	10.68	10.68	10.00	10.00	11.12	11.12	15.28	15.28	13.82	13.82	12.18	12.18
13	Other Expenses	100.04	0.00	150.46	0.00	219.12	219.12	283.55	283.55	350.89	350.89	220.81	284.52
14	Corporate office expenses	300.22	288.73	342.62	325.74	481.38	468.38	594.07	557.90	835.76	684.38	510.81	465.03
15	Total O&M	1403.42	782.90	1734.89	863.37	2486.58	2435.06	2798.04	2667.73	4478.17	3417.49	2580.22	2569.87

61. O & M expenses allowed in tariff are summarised below:

Year	(Rs. in lakh)			
	2000-01 (Base Year)	2001-02	2002-03	2003-04
O&M expenses claimed (Form-15)	4221	4474	4742	5027
Normalised O&M including water charges for the year 2000-01	3296.11			
O&M expenses allowed		3493.88	3703.51	3925.72

62. The petitioner has claimed water charges separately. As the O&M charges allowed include water charges, these have not been approved separately.

INTEREST ON WORKING CAPITAL

63. 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 para 2.3 of the notification dated 26.03.2001. The fuel cost allowed in working capital is given hereunder:

	2001-2002	2002-2003	2003-2004
Weighted Avg. GCV of Gas (kCal/SCM)	9257.30	9257.30	9257.30
Specific gas Consumption (SCM/kWh)	0.2268	0.2268	0.2268
Annual Requirement of gas (1000 SCM)	1319143	1319143	1322758
Weighted Avg. Price of Gas (Rs./1000 SCM)	4068.33	4068.33	4068.33
Fuel Cost (Rs. in lakh)	53667.11	53667	53814
Fuel Cost - 1 month (Rs. in lakh)	4472.26	4472.26	4484.51

- (b) HSD Stock: The HSD stock has been worked out for 15 days on the basis of operational parameters and weighted average price of HSD. The normative stock for 15 days' HSD stock has been considered in the calculation since its value is lower than the actual HSD stock as per the audited balance-sheet for the year 2000-2001. The cost of HSD stock considered has been computed as shown below:

	2001-2002	2002-2003	2003-2004
Weighted Avg. GCV of HSD (kCal/Lit.)	9152.82	9152.82	9152.82
Specific HSD Consumption (Litres/kWh)	0.23	0.23	0.23
Annual Requirement of HSD (ltrs)	1334202	1334202	1337857
HSD Stock in KL	9314	9314	9314
Weighted Avg. Price of HSD (Rs./KL)	15445.72	15445.72	15445.72
HSD Stock-Rs. in lakh	1439	1439	1439
HSD Stock as per audited accounts of 2000-01 (Rs in lakh)	2110	2110	2110

- (c) O&M Expenses: As per the notification dated 26.03.2001, 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.
- (d) Spares: As per the notification dated 26.03.2001, maintenance spares at actuals subject to a maximum of 1% of the capital cost but not exceeding 1 year's requirements less value of 1/5th of initial spares already capitalised for first 5 years are required to be considered in the working capital. Accordingly, actual spares consumption/one year requirement has been worked out in the similar manner as prescribed for O&M expenses in the notification dated 26.03.2001, that is, the average

of actual spares consumption for the years 1995-1996 to 1999-2000 has been considered as spares consumption for the year 1997-98, which has been escalated twice at the rate of 10% per annum to arrive at spares consumption for the base year 1999-2000, and the base spares consumption for the year 1999-2000 has been further escalated at the rate of 6% per annum to arrive at permissible spares consumption for the relevant year. The above amount has been restricted to 1% of capital cost as on 1.4.2001. As the plant is more than 5 years old, deduction of 1/5th of initial spares is not applicable. The calculations in support of spares allowed in working capital are as under:

(Rs. in lakh)

Spares	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	Average	Base	Base	Tariff Period			
						1995-1996 to 1999-2000	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	
Actual Consumption as per Audited Balance Sheet	265	275	224	163	831							
Calculation of Base Spares	265	275	224	163	831	352	425	451	478	507	537	
1% of Average Capital Cost								866	866	866	866	
Minimum of the above allowed as spares								451	478	507	537	

- (e) Receivables: As per the notification dated 26.03.2001, 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

	(Rs. in lakh)		
	2001-2002	2002-2003	2003-2004
Variable Charges			
Gas(Rs/kWh)	0.9514	0.9514	0.9514
Rs./kwh	0.9514	0.9514	0.9514
Variable Charges per year	53667	53667	53814
Variable Charges -2 months	8945	8945	8969
Fixed Charges - 2 months	3538	3452	3375
Receivables	12483	12396	12344
Variable Charges			
Gas(Rs/kWh)	0.9514	0.9514	0.9514
Rs./kWh	0.9514	0.9514	0.9514
Variable Charges per year	53667	53667	53814
Variable Charges -2 months	8945	8945	8969
Fixed Charges - 2 months	3538	3452	3375
Receivables	12483	12396	12344

- (f) Working Capital Margin: The notification dated 26.3.2001 is silent on Working Capital Margin. The Commission had considered the Working Capital Margin while awarding tariff for the period 1.4.1999 to 31.3.2001 vide order dated 30.6.2003 in Petition No.95/2002. Accordingly, Working Capital Margin of Rs.3609.00 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 ratio of interest.

64. 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 interest of 12.53% claimed by the petitioner.

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

Calculation of Interest on Working Capital

(Rs. in lakh)

	2001-2002	2002-2003	2003-2004
Fuel Cost	4472	4472	4485
HSD Stock	1439	1439	1439
O & M expenses	291	309	327
Spares	478	507	537
Receivables	12608	12529	12485
Total Working Capital	19288	19255	19272
Working Capital Margin (WCM)	3609	3609	3609
Total Working Capital allowed	15679	15646	15663
Rate of Interest	11.50%	11.50%	11.50%
Interest on allowed Working Capital	1803	1799	1801
Interest on WCM	293	297	297
Return on WCM	289	289	289
Total Interest on Working capital	2385	2385	2387

ANNUAL FIXED CHARGES

66. 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)

	2001-2002	2002-2003	2003-2004
1 Interest on Loan	4374	3688	3054
2 Interest on Working Capital	2385	2385	2387
3 Depreciation	4798	4798	4798
4 Advance against Depreciation	0	0	0
5 Return on Equity	6931	6931	6931
6 O & M Expenses	3494	3704	3926
TOTAL	21982	21506	21096

67. 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 decided by the Commission in its order dated 30.6.2003 in Petition No.95/2002 and non-consideration of the petitioner's claim for

additional capitalisation for the period from 1.4.2001 to 31.3.2004 for the reasons already indicated.

ENERGY/VARIABLE CHARGES

68. The petitioner has claimed the energy charges based on the operational norms applicable to gas based projects as per Ministry of Power notification dated 5.5.1999 for the tariff period 2001-2004.

69. The fuel price and GCV furnished by the petitioner for the month of Jan, Feb, March 2001 in the petition have been considered for the base energy charge computation. HVPNL had pointed out during the hearing on 21.3.2003 that the petitioner is raising energy charges on a composite basis, despite the fact that capacity is to be declared separately for gas and liquid fuel under ABT. HVPNL further stated that they were not buying the power from the liquid fuel but are made to pay for the power on liquid fuel in the composite billing for the time being. This is not fair even though the bills are provisional and subject to correction. Since the capacity is to be declared separately for gas and liquid fuel under ABT, the base energy charges have been computed for natural gas and liquid fuel separately. The base energy charge(BEC) computed based on the data furnished by the petitioner, are summarised below:

Computation of Energy Charges

Description	Unit	
Capacity	MW	829.78
Normative PLF	Hours/ kW /year	7008.00
Gross Station Heat Rate corresponding to GCV (With NO _x Control)	kCal/kWh	2125.00
Gross Station Heat Rate corresponding to GCV (Without NO _x Control)	kCal/kWh	2100.00
Aux. Energy Consumption	%	3.00
GCV of Gas (average)	kCal/SCM	9257.30
Price of Gas (average)	Rs./1000SCM	4068.33
GCV of HSD (average)	kCal/Lit.	9152.82
Price of HSD(average)	Rs./KL	15445.72
Rate of Energy Charge ex-bus per kWh Sent (With Nox Control) on Nat. Gas	Paise/kWh	96.28
Rate of Energy Charge ex-bus per kWh Sent (Without Nox Control) on Nat. Gas	Paise/kWh	95.14
Rate of Energy Charge ex-bus per kWh Sent (With Nox Control) on HSD	Paise/kWh	369.69
Rate of Energy Charge ex-bus per kWh Sent (Without Nox Control) On HSD	Paise/kWh	365.34

70. 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 provide 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: -

(i) Fuel price and GCV variation (Gas and liquid fuel) based on monthly weighted average as per the formula given below :-

$$\text{FPA} = \frac{10 \times (\text{SHR}_n) \times \left[\left(\frac{P_m}{K_m} \right) - \left(\frac{P_s}{K_s} \right) \right]}{(100 - \text{AC}_n)}$$

Where,

FPA = Fuel price Adjustment for a month in Paise/kWh Sent out

SHR_n = Normative Gross Station Heat Rate expressed in kCal/kWh

AC_n = Normative Auxiliary Consumption in percentage

P_m = Weighted average price of Gas or Liquid fuel as per PSL for the month in Rs. / 1000 SCM of Rs./ KL or Rs./MT

K_m = Weighted average gross calorific value of Gas or Liquid fuel for the month in Kcal/ SCM or kCal/ Litre or kCal/ Kg

P_s = Base price of Gas or Liquid fuel as taken for determination of base energy charge in tariff order in Rs. / 1000 SCM of Rs./ KL or Rs./MT

K_s = Base value of gross calorific value of Gas or Liquid fuel as taken determination of base energy charge in tariff order in Kcal/ SCM or kCal/ Litre or kCal/ Kg

(ii) FPA shall further be subjected to adjustment for monthly operating pattern adjustment (MOPA) for percentage open cycle operation as certified by respective REB and corresponding to Gross Station Heat Rate of 3150 k.cal/kwh (without Nox control) or 3190 kCal/kWh (with Nox control) and aux. energy consumption of 1%.

71. The average stock maintained by the NTPC for the year 2001-02 & 2002-03 is as follows;

(In KL)		
2001-02	2002-03	Average
8809.66	9818.83	9314.24

72. 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.

73. Uttar Pradesh Power Corporation Limited, Respondent No.1 has filed an interlocutory application (IA No 33/2003) to seek a direction to the petitioner to charge tariff at the reduced rate of 80% of the fixed cost being charged provisionally till determination of final tariff by the Commission. As this order decides the final tariff for the period from 2001-2002 to 2003-2004, no separate order needs to be passed on the IA, which has become infructuous and gets disposed of through this order.

74. This order disposes of Petition No 44/2001.

Sd/-
(K.N. SINHA)
MEMBER

Sd/-
(ASHOK BASU)
CHAIRMAN

New Delhi dated the 24th October, 2003