CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram:

Shri A.H. Jung, Member

Petition No. 40/2004

In the matter of

Approval of tariff of Badarpur Thermal Power Station (705 MW) for the period from 1.4.2004 to 31.3.2009.

And in the matter of

Badarpur Thermal Power Station, New Delhi ……**Petitioner**
Vs
Delhi Transco Limited, New Delhi …. **Respondent**

The following were present:

1. Shri V.B. K. Jain, NTPC
2. Shri N. Ahmad, NTPC
3. Shri S.D. Jha, NTPC
4. Mrs Pranav kapoor, NTPC
5. Shri D.G. Salpekar, NTPC
6. Shri R.N. Sen, NTPC
7. Shri C.S. Gupta, NTPC
8. Mrs Sumitra Dhani, NTPC
9. Shri V.K. Gupta, Consultant, DTL
10. Shri M. P. Aggarwal, DTL
11. Shri V.K. Garg, DTL
12. Shri N.K. Sharma, DTL
13. Shri V.K. Malhotra, DTL

ORDER

(DATE OF HEARING: 15.6.2005)

This petition has been filed for approval of tariff in respect of Badarpur Thermal Power Station (BTPS) owned by the Central Government in Ministry of Power, for the period from 1.4.2004 to 31.3.2009. Badarpur Thermal Power Station is presently supplying power only to the respondent, Delhi Transco Ltd. for meeting load requirement of National Capital Territory of Delhi.

2. Badarpur Thermal Power Station was conceived by Government of India in the year 1967 for meeting the growing demand of power in Northern Region. However, since 1987, the entire power generated from the power station is being utilized for meeting the demand of Delhi. The generating station comprises of three units of 100 MW each in Stage-I (de-rated to 95 MW) and 2 units of 210 MW each in Stage-II. Therefore, the ultimate capacity at present is 705 MW. The dates of commercial operation of the different units in Stage-I and Stage-II are as follows:

Stage I	Stage II
Unit-I: 1.11.1973	Unit-IV: 17.3.1980
Unit-II: 1.9.1974	Unit-V: 1.4.1982
Unit-III: 1.4.1975	

3. The generating station was designed and engineered by the erstwhile Central Water & Power Commission (predecessor of the Central Electricity Authority) and was being operated by them till March 1978. Government of India entrusted the management of Badarpur Thermal Power Station to National Thermal Power Corporation Ltd. under a contract agreement between Ministry of Power and NTPC w.e.f.1st April 1978 that has expired on 31.3.88. There is no formal contractual arrangement as on date between Government of India and National Thermal Power Corporation Ltd.

4. Ministry of Energy, Department of Power revised the tariff for Badarpur Thermal Power Station, Government of India vide its letter No.49/16/82-D7/AS dated 17th March 1987 w.e.f 1st April 1987. The tariff was fixed at 61.38 paise per unit exclusive of excise duty and other taxes, which were to be paid additionally.

5. The base tariff of 61.38 paise/kWh was computed corresponding to energy sent out of 3168 MUs at 57.08% normative PLF for the rated capacity of the

generating station of 720 MW considering 12% Auxiliary Energy consumption. The breakup of base tariff of 61.38 paise/kWh was as follows:

(a)	**Fixed Charges:**	**Rs. Crore**	**Paise/kWh of sent out energy**
(i)	Interest on fixed capital @ 8.5% on net worth as on 1.4.87 of Rs.196.62 Crore.	16.71	5.28
(ii)	Interest on working capital.	4.19	1.32
(iii)	Depreciation @ 3.6% on gross block of Rs. 255 Crore.	9.18	2.90
(iv)	O&M cost 2.5% of current capital cost of Rs. 11100 per kW.	19.98	6.31
(v)	Standard profit @ 3% of net worth as on 1.4.87 of Rs. 196.62 Crore.	5.90	1.86
Total		**55.96**	**17.67**
(b)	**Energy Charges**		
(i)	Coal cost	112.66	35.54
(ii)	Oil cost	25.82	8.17
Total		**138.48**	**43.71**

6. The fixed charges were computed on Net Fixed Asset concept. The energy charges were based on station heat rate of 3189 kCal/kWh, Specific Fuel oil consumption of 22.5 ml/kWh (21 ml/kWh for furnace and 1.5 ml/kWh for HSD), auxiliary energy consumption of 12%, prevailing prices and GCV of coal and oil. These base energy charges were subject to fuel price variation for price & GCV of coal & oil.

7. The tariff for sale of electricity from Badarpur Thermal Power Station has not been revised by the Central Government since March 1987. It implies that fixed charge recovery was at 17.67 paise/kWh since 1987. PLF for the year 2003-04 was 87.7% and it resulted in annual fixed charge recovery of the order of Rs. 84.22 Crore, including incentive of 28.26 Crore. Energy charges recovery is based on fuel price variation formula. The energy charge based on the price & GCV of coal and

secondary fuel oil given in the petition works out as 214 paise/kWh sent out considering old operational norms. The annual recovery of energy charge corresponding to 87.7% PLF for the year 2003-2004 works out to Rs.1019.97 Crore.

8. The petitioner has claimed the following fixed charges in the tariff petition, considering additional capitalization due to R&M, and are based on liability side approach (Gross Fixed Asset Concept):

(Rs. in Crore)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	12.93	18.48	27.77	35.75	40.24
Interest on Loan	21.82	24.07	28.04	29.82	28.46
Return on Equity	30.72	37.46	47.50	55.42	59.56
Advance against Depreciation	9.01	8.28	6.16	3.84	2.31
Interest on working capital	32.73	33.19	33.80	34.31	34.65
O&M Expenses	192.94	200.66	208.69	217.04	225.72
Total	**300.15**	**322.14**	**351.94**	**376.17**	**390.93**

9. The energy charge considering the improved operational norms proposed by the petitioner in the petition works out to 168.5 paise/kWh and annual energy charge corresponding to 87.7% PLF works out as Rs.803.12 Crore, excluding incentive.

10. Initially, the petitioner filed a petition for approval of tariff based on debt-equity ratio of 70:30. Subsequently, an amended petition has been filed wherein tariff has been proposed by taking debt-equity in the ratio of 50:50. Further, in the amended petition, the petitioner has sought approval based on “Gross Fixed Assets” concept, though the tariff earlier approved by the Central Government by its letter dated 7.3.1987 was based on “Net Fixed Assets” concept. The Commission has notified the terms and conditions for determination of tariff applicable from 1.4.2004 to 31.3.2009. However, the operational norms to be applied to BTPS have not been considered in these terms and conditions for the reason that actual operational data in respect of

BTPS was not available before the Commission. Therefore, before the Commission takes up the exercise of actual determination of tariff, it is necessary that certain preliminary issues get resolved. For this purpose, Commission decided that all the aspects should be examined by a one Member Bench of the Commission, to make suitable recommendations to the Commission for its consideration. I was nominated to conduct further proceedings and make suitable recommendations to the Commission for this purpose. The specific terms of reference are:

(a) Whether to follow the "net fixed assets" concept or "gross fixed assets" concept:

(b) Debt-equity ratio to be considered;

(c) Gross block to be considered as on 1.4.2004;

(d) R & M expenditure and the expenditure to meet environmental norms to be considered;

(e) O & M expenses to be considered in tariff; and

(f) Operational norms of gross station heat rate, auxiliary energy consumption, specific fuel oil consumption and target availability/PLF to be applicable.

11. Against the above background, I have conducted the further proceedings. On consideration of the various instances referred by the petitioner in the petition, which are duly supported by the other evidence, I am satisfied that the parameters or terms and conditions of tariff for the Badarpur Thermal Power Station are to be considered in the light of the circumstances and facts peculiar to this generating station. Therefore, I propose to undertake the exercise on determination of the above parameters and make appropriate recommendations to the Commission by considering the issues raised. These are deliberated in paras that follow.

Net Fixed Assets Vs Gross Fixed Assets Approach

12. The Government of India had adopted a tariff in 1987 based on Net Fixed Asset (NFA) concept and had claimed a return on investment of 11.5% (A nominal profit of 3% on the Net Fixed Asset plus interest on loan at 8.5% on the Net Fixed Asset). However, the present petition has been made based on Gross Fixed Asset (GFA) concept. The petitioner has submitted that tariff for sale of electricity from Badarpur Thermal Power Station (BTPS) fixed by the Central Government in March 1987, effective from 1.4.1987 was based on NFA approach, without regard to strict commercial principles. It was stressed that the Electricity Act, 2003, emphasizes that power sector should work on self-sustaining basis. Accordingly, it was urged on behalf of the petitioner to follow GFA approach for the purpose of fixation of tariff. According to the petitioner, the Commission in its orders while laying down the terms and conditions for determination of tariff has all along opted for GFA approach. The respondent was of the view that in the interest of continuity, NFA approach need to be followed.

13. The petitioner further pointed out that there are huge outstandings against the respondent as a consequence it has not been possible to settle dues of coal supply companies and the Railways for the supply and transportation of coal. The petitioner vide order dated 25.5.2005 was directed to furnish a detailed note on the dues outstanding against the respondent, as also the outstanding dues of the generating station to various agencies and its proposal for liquidation of the outstanding amount. The details of the outstandings against the respondent as on 30.4.2005 and the outstandings against BTPS are as follows:

(Rs. in Crore)

Outstanding of Delhi Transco Limited for the DESU period (i.e. Up to 24.2.1997)	
Principal	2389.33
Interest	7664.83
Total	10054.16
Outstanding of Delhi Transco Limited for the DVB period (i.e. from 25.2.1997 to 30.6.2002)	
Principal	67.94
Interest	5.36
Total	73.30
Outstanding of BTPS against Railways	655.21

14. From the details furnished by the petitioner it is found that the major outstandings are for the period before the respondent came on the scene. The respondent is duly discharging its current liabilities for the power purchased. The scope of present petition is determination of tariff for the specified period and I have to limit myself to the terms of reference. I should not get dragged into an area, which is not relevant for determination of tariff. Therefore, I am not deliberating on the issue of outstanding dues any further.

15. With regard to the issue of adopting GFA concept or the NFA concept for tariff determination, a careful thought has been given and I recommend that NFA concept may continue to be followed for the tariff determination in view of the following:

(i) The station is in operation since November 1973 and its different units have operated between 25 to 34 years and have served their rated life.

(ii) The Commission in the past has preferred continuity in tariff setting and has not disturbed it, except for compelling reasons. In this context, I have taken into the account the tariff setting for generating stations belonging to NLC.

Debt-equity ratio

16. The petition was originally filed by considering debt-equity in the ratio of 70:30 based on the terms and conditions of tariff notified on 29.3.2004. During pendency of the application, the Commission has decided that in case of the generating stations existing prior to 1.4.2004, debt-equity ratio considered by the Commission for fixation of tariff for the period ending 31.3.2004 would be considered for determination of tariff. In view of this decision, the petitioner has amended the original petition to claim tariff based on debt-equity ratio of 50:50, as earlier considered by Ministry of Power for the purpose.

17. According to the petitioner, no loans have been taken for this generating station and the entire capital was financed through Government's own funds. I, therefore, recommend that the capital expenditure as on the date of commercial operation as well as additional capitalization may be considered in the debt- equity ratio of 50:50 as on date of commercial operation and in the year of additional capitalization respectively, as the case may be. The terms and conditions of the loan (s) i.e the rate of interest, moratorium period and repayment period etc as applicable to Government of India loan(s) as on date of commercial operation and in the year of additional capitalization may be taken for computation of tariff.

Capital Cost

18. The petitioner has claimed the following opening and closing gross blocks in the respective year of tariff period after considering anticipated additional capitalisation:

(Rs. in Crore)

Period	2004-05	2005-06	2006-07	2007-08	2008-09
Opening Capital Cost	414.87	462.76	607.54	749.50	834.05
Additional capitalization	47.89	144.78	141.96	84.55	33.73
Closing Capital Cost	462.76	607.54	749.50	834.05	867.78

19. The opening capital cost of Rs. 414.87 Crore as on 1.4.2004 is the sum of gross block as on 31.3.2003 of Rs. 410.64 Crore and an anticipated expenditure of Rs.4.23 Crore for the year 2003-04. According to the petitioner, as per the audited balance sheet for the year 2003-04 the gross block as on 31.3.2004 is Rs. 430.76 Crore. As such, there is an additional capitalisation of Rs. 20.12 Crore in 2003-04. The petitioner has indicated an admitted project cost of Rs.132.14 Crore as on 1.4.1982. The Government of India has revised the tariff for the generating station vide letter dated.17.3.1987 based on a capital cost of Rs.255 Crore. As such, there is an additional capital expenditure of Rs.175.76 Crore from 31.3.1986 to 31.3.2004. This is inclusive of expenditure for R&M Phase-I of Rs.36.97 Crore and SFC-I, II & III (Standing Finance Committee) of Rs.24.70 Crore, Rs.14.91 Cores and Rs.14.95 Crore respectively which together are of value of Rs. 91.53 Crore. The petitioner was asked to furnish the details of balance additional capital expenditure of Rs. 84.23 Crore. The petitioner has furnished the details of balance capital expenditure of Rs.95.49 Crore, which consist of expenditure related to ash pond and construction of ash dyke, augmentation of fire protection system and condenser cooling system. The

petitioner has clarified that the basis of taking gross block of Rs. 255 Crore by the Central Government in tariff setting in 1987 was as a provisional measure and was average of provisional capital of three years. As such, there is an additional capitalization of Rs. 187.02 Crore (Rs. 91.53 + Rs.95.49 Crore) after the tariff was approved by the Central Government in 1987. This when added to the gross block of Rs. 255 Crore considered by the Central Government in 1987 leads to gross block of Rs. 442.02 Crore which is higher then gross block of Rs. 430.76 Crore as on 31.3.2004 as per books of accounts.

20. I, therefore, recommend that the actual capital expenditure of Rs.430.76 Crore as on 31.3.2004 (Gross Fixed Assets as per balance sheet for the year 2003-04) may be allowed. The corresponding Net Fixed Asset is Rs. Rs. 229.78 Crore as on 31.3.2004. This is after deducting cumulative depreciation of Rs.200.98 Crore recovered up to 31.3.2004 indicated by the petitioner from the gross block of Rs. 430.76 Crore. The cumulative depreciation recovered based on Net Fixed Asset value of Rs. 196.62 Crore by the Central Government and subsequent recovery of Rs. 9.18 Crore per year works out to Rs. 214.44 Crore {(255-196.62)+9.18x17=214.44}. However, I do not intend to go by Net Fixed Asset value corresponding to gross asset value of Rs. 255 Crore. The Net Fixed Asset of Rs. 229.78 Crore should be the opening Net Block as on 1.4.2004 for determination of tariff. Further, any additional capitalisation can be allowed in the capital base after the expenditure has actually been incurred and hence anticipated additional capitalisation indicated by the petitioner should not be considered for the determination of tariff at this stage.

R & M expenditure

21. The petitioner had requested for the approval of R&M expenditure of Rs.452 Crore at price level of 1996 involving R&M of Stage-I & Stage -II. The petitioner has now clarified that these estimates of R&M expenditure were at 2003 price level. During the hearing on 16.5.2005, the petitioner has submitted that Stage-I units of 95 MW are nearby 35 years old and it is not possible to firm up R&M requirement for these units. BHEL has recommended inspection of these units for material integrity assessment of critical components at regular intervals not exceeding 25000 EOH (Equivalent Operating Hours). This implies that it would be possible only to sustain operation of these units for some more time. However, there is no guarantee for sustaining present level of performance. It becomes evident that Stage-I units cannot be kept in operation indefinitely and eventually a decision will have to be taken to phase out these three units of 95 MW of Stage-I. I, therefore, directed petitioner to explore possibility of replacing these three stage-I units with one new 250 MW unit having better efficiency. The respondent was also directed to make up its mind on R&M of the generating station and give its specific views on R&M of Stage-I & Stage-II. The respondent vide affidavit dated 14.6.2005 has submitted that R&M of Stage-II has been approved by CEA and it does not have any objection to R&M of 2x210 MW units of Stage-II. However, as regards R&M of Stage-I, the respondent is of the view that it should be taken up only if present level of performance and efficiencies can be sustained. Otherwise, the respondent favours replacement of these units with a new unit of 250 MW capacity. The petitioner is exploring the possibility of replacing these Stage-I units. The respondent has further submitted that as per the demand and supply position as per 17th Electricity Power Survey, supply position would be comfortable if these units are replaced in 2007-08 or after. This implies that the respondent favours the status quo for the units of Stage-I in current tariff period and their phasing out only in a gradual manner. Nevertheless, advance action on feasibility study, firming up schedule of implementation, and funding shall have to be

initiated immediately. The petitioner, however, submitted that it does not have any incentive to infuse any fresh investment on R&M, if NFA concept is adopted for tariff setting, because there are other avenues available for investment in green field projects where tariff is allowed on GFA concept. I am of the view that R&M for the life extension benefits the generator as well as the beneficiary and any investment on NFA approach would also be getting return and the investment shall be reimbursed through depreciation.

22. With regard to fresh investment on setting up of a new capacity of 250 MW with better efficiency, to replace 35 years old inefficient Stage-I units, I am of the view that the same could be serviced on GFA approach. This should be motivation enough for the petitioner to take up the above project with the seriousness it deserves. A viable and firmed up scheme in this regard should be submitted by the petitioner by December 2005. However, capital dosing of minor nature to sustain operation of Stage-I units could be allowed (subject to prudence check) until they are phased out.

23. As regards R&M of Stage-II, the petitioner has submitted that CEA has already approved an R&M expenditure of Rs.329 Crore at 2004 price level, which is likely to extend life of the generating Station by about 15 years. The respondent is also not averse to R&M of Stage-II. However, the respondent has expressed a concern that timeframe of R&M along with cost benefit analysis and a commitment on extended life of the units has not been indicated. I have has no objection to R&M of Stage-II, in principle, in view of CEA approval, which the petitioner should place on record. The R&M expenditure for Stage-II can be admitted after prudence check as per the usual practice of the Commission. The petitioner, for the recovery of depreciation through tariff, must furnish the average extended life of Stage-II units from a reference date.

This is, however, not relevant at this stage in this tariff determination and the details may be furnished by the petitioner while filing petition for the revision of tariff after incurring R&M expenditure.

O & M Expenses

24. The petitioner has claimed the following O&M expenses for the period 2004-05 to 2008-09 based on actual for the period 1998-99 to 2002-03:

	2004-05	2005-06	2006-07	2007-08	2008-09
O&M Expenses (Rs. in Crore)	192.94	200.66	208.69	217.04	225.72
O&M Expenses (Rs. in Lakh / MW)	27.37	28.46	29.60	30.78	32.01

25. The reasons for high O&M expenses have been attributed mainly to high administration expenses on account of extra manpower deployed at the generating station. The manpower deployed at the generating station has come down from 2368 personnel in 1999-2000 to 1892 personnel in 2002-03. This still works out to about 2.68 person/MW and is very high as against 1 person /MW for NTPC stations in general.

26. Further, as per the clarifications furnished by the petitioner, O&M expenses for the period 1999-2000 to 2003-03 includes an amount of Rs.37.306 Crore of capital expenditure booked as deferred revenue expenditure and an amount of Rs.12.456 Crore towards payment against VRS in 2002-03. This expenditure need not be considered for arriving at norms of O&M expenses and hence after making adjustment for these expenses, the normalized O&M expenses for the period 1998-99 to 2002-03 work out as follows:

(Rs. in Crore)

	1998-99	1999-2000	2000-01	2001-02	2002-03
Actual O&M Expenses	**117.44**	**134.80**	**159.67**	**163.35**	**201.25**
Less productivity linked incentive	**3.29**	**2.52**	**9.20**	**7.65**	**6.44**
Less Deferred Revenue expenditure		**7.93**	**2.94**	**11.30**	**15.11**
Less prior period adjustment	1.46	-1.25	1.41	-1.28	24.55
Less Payment against VRS					12.46
Normalised Expenses	112.69	125.60	146.10	145.68	142.69
O&M Expenses (Rs. Lakh/MW)	15.98	17.82	20.72	20.66	20.24

27. It could be seen that O&M expenses are fairly constant during three-year period from 2000-01 to 2002-03 despite pay revision and escalation in prices. This is perhaps due to reduction in employee strength through VRS and retirements. There is obviously a need to trim O&M expenses from point of view of economy in the cost of supply to the respondent. At the same time, reduction can be brought about only gradually under the given circumstances. Therefore, I recommend that O&M expenses of the order of Rs.20.25 Lakh/MW may be considered, without escalation during the tariff period. As such, an amount of Rs 142.75 Crore per year may be allowed during the tariff period

Operational Norms

28. The operational norms as contained in the tariff notification dated 29.3.2004 are not applicable to Badarpur TPS. Therefore, the first requirement is to finalize the operational norms applicable. In order to take a view on operational norms, vide order dated 10.8.2004, the petitioner was directed to file certain information which has been furnished by the petitioner on affidavit dated 9.11.2004.

29. The petitioner has furnished quarterly operational data of Badarpur TPS for the last 5 years i.e. 1999-00 to 2003-04. The weighted average operational parameters for the 5 years period as against claims of petitioner are as follows:

	Calculated from Data furnished for 1999-2000 to 2002-03	As Claimed
Availability (%)	90.37	70.00
PLF (%)	84.70	70.00
Station Heat Rate (kCal/kWh)	2824.44	2885.00
Auxiliary consumption (%)	9.01	12.00
Specific fuel oil consumption (ml/kWh)	0.567	3.50

30. The petitioner has mentioned the weighted average station heat rate in a range instead of one weighted average rate for the each quarter. It has also not furnished coal consumption figures for the quarter as required. Instead it has furnished coal receipt for the quarter. However, the computation of weighted average station heat rate based on coal receipt for the quarter over 5 year period should not lead to much distortion in the station heat rate figure arrived at by me in process below. As such, there is scope for rationalizing operational norms.

Target availability

31. This generating station is supplying power to National Capital Territory of Delhi and was not under ABT till 31.3.2005. The historical performance data is for pre-ABT period, when the generating station used to generate to the maximum capacity, irrespective of grid frequency and there was no penalty for not meeting the declared

availability. After implementation of availability w.e.f. 1.4.2005, the generating station is required to declare availability on day ahead basis and there is penalty for generating less than the schedule when the frequency is below 50 Hz. The general norms of target availability for 200/500 MW units are 80%. Considering the age and size of Units, it is recommended to fix target availability at 75%.

Target Plant Load Factor for Incentive

32. The target availability has been relaxed considering the age of the Badarpur Units. Accordingly, it would also be reasonable to set the target PLF as 75%. I recommend accordingly.

Gross Station Heat Rate

33. After implementation of ABT, the generating station may be called upon to reduce generation during off peak period as per merit order operation. It is, therefore, necessary to give some reasonable margin over the actual average heat rate figures for the last five years when the generating station was not backing down. The petitioner has claimed a station heat rate norm of 2885 kCal/kWh leaving a margin of 60.56 kCal/kWh. This is about 2% of the average heat rate and the same is considered reasonable. I recommend accordingly.

Auxiliary Energy Consumption

34. The average auxiliary power consumption over 5 year period is of the order of 9.01% but the auxiliary power consumption for the year 2003-04 ranges between 9.38 to 9.97% in the four quarters. The petitioner has explained that this is due to very poor quality of the Yamuna water necessitating close cooling cycle operation of the station

and poor quality of coal as compared to design coal necessitating operation of one additional mill continuously. The petitioner had also stated that the actual data pertaining to auxiliary energy consumption is not reliable as the accuracy of energy meter was not good. It has now furnished the auxiliary energy consumption data for the month of April 2005 after implementation of ABT measured through special energy meters which is about 10.013% at 78% PLF without cooling towers and after deducting colony consumption. With cooling tower, the petitioner has projected an additional auxiliary energy consumption of 1.02% point. But the general norms specified for the coal-based generating stations provide for additional consumption of the order of 0.5% point with cooling towers. In view of this, actual auxiliary energy consumption would be of the order of 10.513% with cooling towers. After allowing for some flexibility of operation, it is recommended to fix the auxiliary energy consumption norm at 11.0%.

Specific fuel Oil consumption

35. The average specific fuel oil consumption for the last five years is of the order of 0.566 ml/kWh. However, under ABT, the generating station may have to back down during off peak periods, requiring oil support, which was not the case in the past. In view of this, a norm of about 2.60 ml/kWh should be reasonable for the generating station as a whole. The norm has been arrived at by considering specific fuel oil consumption of 3.5 ml/kWh norm for 95 MW unit and 2-ml/kWh norm for 210 MW unit (3.5x3x95+2x210x2)/705 = 2.60).

Operational Norms

36. In view of the above, the following operation norms could be allowed for the Badarpur TPS for the period 2004-2009 as against the claim of NTPC giving adequate operating margin which recommend:

	As claimed	As Recommended
Target Availability (%)	70.00	75.00
Target PLF (%) for Incentive	70.00	75.00
Gross Station Heat Rate (Kcal/kWh)	2885.00	2885.00
Auxiliary Energy Consumption (%)	12.00	11.00
Specific fuel oil consumption (ml/kWh)	3.50	2.60

Sd/-
(A.H.JUNG)
MEMBER

New Delhi, dated 7th July, 2005