CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram

1. **Shri Ashok Basu, Chairman**
2. **Shri K.N.Sinha, Member**
3. **Shri A. H. Jung, Member**

Petition No 33/2003

In the matter of

Approval of tariff in respect of Assam Gas Based Power Station for the period from 1.4.2001 to 31.3.2004.

And in the matter of

North Eastern Electric Power Corporation Ltd. **……Petitioner**

Vs

1. Assam State Electricity Board, Guwahati
2. Meghalya State Electricity Board, Shillong
3. Department of Power, Govt. of Tripura, Agartala
4. Power & Electricity Department, Govt. of Mizoram, Aizawl
5. Electricity Department, Govt. of Manipur, Imphal
6. Department of Power, Govt. of Arunachal Pradesh, Itanagar
7. Department of Power, Govt. of Nagaland, Kohima
8. North-Eastern Regional Electricity Board, Shillong
9. North-Eastern Regional Load Despatch Centre, Shillong. **Respondents**

The following were present

1. Shri Alok K. Agarwal, Advocate, NEEPCO
2. Shri Sudhir Misra, Advocate, NEEPCO
3. Shri Shashank Kumar, Advocate, NEEPCO
4. Shri A.G. West, GM (F), NEEPCO
5. Shri J. Barkakati, D(T), NEEPCO
6. Shri P.K. Borah, NEEPCO
7. Shri R. Malik, NEEPCO
8. Shri B. Goswami, NEEPCO
9. Shri N. Medhi, Dy. Mgr (E), NEEPCO
10. Shri R. Kapoor, ASEB
11. Shri D. Das, Addl CE (Com), ASEB
12. Shri H.M. Sharma, ASEB
13. Shri K. Goswami, ASEB
14. Shri Anup Mahanta, MeSEB
15. Shri C.M. Bhogal, Member Secretary, NEREB

ORDER
(DATE OF HEARING 7.6.2005)

This petition has been filed by the petitioner, NEEPCO, a generating company owned by the Central Government for approval of tariff for Assam Gas Based Power Station, (hereinafter referred to as “Assam GBPS”) for the period from 1.4.2003 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. Assam GBPS (291 MW) consists of six gas turbines of 33.5 MW and three steam turbines of 30 MW each. The following projects cost approvals are available for Assam GBPS:

Approval/Date	Project cost
Original approval vide Ministry of Power letter dated 2.11.87	Rs.203.17 crore (1985 price level)
RCE-1 approved vide Ministry of Power letter dated. 28.5.92	Rs.1014.07 crore including IDC of Rs.118.30 crore (Based on 3rd quarter, 1991 price level)
RCE-2 approved vide Ministry of Power letter dated 16.9.1997	Rs.1347.57 crore including IDC of Rs.86.49 crore and WCM of Rs.15.41 crore (Based on 1st quarter,1996 price level) (Rs.1332.16 crore excluding WCM)
RCE-3 approved vide Ministry of Power letter dated 14.2.2000	Rs.1532.32 crore including IDC of Rs.152.81 crore and WCM of Rs.16.75 crore (Rs.1515.57 crore excluding WCM)

3. Therefore, the latest approved capital cost is Rs.1515.57crore excluding WCM as per approval of Ministry of Power letter dated 14.2.2000.

Commissioning Schedule

4. The scheduled and actual dates of commercial operation of the units and the generating station are as follows-

	GT – 1 and 2	GT- 3	GT –4	GT-5 and 6	ST-1, 2, and 3 and the generating station as a whole
Actual dates of commercial operation	1.5.1995	1.7.1995	1.8.1995	1.4.1997	1.4.1999
Scheduled date of commercial operation	March,1992 for the generating station				

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

(Rs. in lakh)

Sl. No.	**Particulars**	**2003-04**
1	Interest on Loan	6817
2	Interest on Working Capital	671
3	Depreciation	7113
4	Advance against Depreciation	0
5	Return on Equity	12404
6	O & M Expenses	4837
	TOTAL	**31843**

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

(Rs. in lakh)

	2003-04
Fuel Cost	1356
O & M expenses	403
Spares	288
Receivables	5020
Total Working Capital	7066
Rate of Interest	9.50%
Total Interest on Working capital	671

7. In addition, the petitioner has claimed Energy Charges @ 40.64 paise/kWh for the period from 1.4.2003 to 31.3.2004.

CAPITAL COST

8. 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.

9. The petitioner has claimed tariff by taking the opening gross block of Rs.153232.00 lakh.

10. The present petition is for approval of tariff for the year 2003-04 for which we have to arrive at the capital cost as on 31.3.2003. The petitioner earlier approached the Commission for determination of tariff from the date of commercial operation of the generating station in the Petition No.6/2000. The Commission confirmed the single part tariff of 225 paise/kWh earlier charged, up to 31.3.2003 vide order dated 5.2.2003.

11. The tariff of 225 paise/kWh was as per the decision at NEREB forum and was based on project cost of Rs.887.94 crore, including IDC of Rs.16.88 crore considering commissioning of 6 gas turbine units by that time alone. The issue of capital cost as on the date of commercial operation of the generating station was

deliberated before the Commission in petition No.6/2000. The petitioner had argued that the capital cost of Rs.1515.57 crore has been approved by CCEA and CCEA being the highest authority, the Commission is bound to accept that cost for the purpose of tariff.

12. The Commission did not deliberate on the issue of capital cost of the generating station for the purpose of tariff in petition No.6/2000. Therefore, in order to arrive at the capital cost as on 31.3.2003, we have to arrive at the reasonable capital cost of the generating station as on the date of commercial operation after prudence check and also to go into the additional capitalisation and FERV subsequent to the date of commercial operation, that is, 1.4.1999. In order to assess the reasonability of the capital cost of the generating station, the issues of time and cost overrun need to be deliberated first.

Time overrun

13. There is a time overrun of 84 months between the actual date of commercial operation and the scheduled date of commercial operation as per original approval. The delay of 84 months is considered in four phases as under–

(i) Delay in placement of orders for main plant equipment (33 months),

(ii) Delay in establishment of letter of credit in favour of lowest bidder M/s Mitsuibishi (5 months),

(iii) Deviation in the implementation schedule (9 Months), and

(iv) Delay during construction period (37 months).

Delay in placement of orders for main plant equipment (32 months)

14. As per the original investment approval, the generating station was to be commissioned within 53 months from the date of investment approval of 2.11.1987. The original construction period envisaged was 31 months. As such, the order for main plant equipment should have been placed within 22 months from the date of investment approval. However, actual orders for main plant equipment could be placed only at the end of May 1992 after a lapse of 55 months from the date of original investment approval. As such, there is delay of 33 months in the placement of order of the main plant equipment. The reasons for this delay of 33 months in placement of orders for main plant equipment as per submission of the petitioner are on account of delay in selection of retainer consultant, delay in floating tenders, non-responsive attitude of the bidders, adverse law and order situation and consequent extension of time for bid submission, unduly high cost quoted by the bidders leading to protracted negotiations and rearrangement of construction packages, and delay in CCEA approval of RCE-1 based on negotiated prices etc. The project was being developed with foreign currency loan assistance from the Overseas Economic Cooperation Fund (OECF) of Japan. It appears that selection of retainer consultant and preparation of Design Memorandum and Bid documents by the retainer consultant were to be approved by the Central Government and OECF. Such approvals have taken longer time than anticipated and can be considered to be beyond the control of the petitioner.

15. It is noted from the record that the bidders were reluctant to quote without assessing the risk factors involved on account of prevalent law and order situation in the State and sought more time. Therefore extension of time for opening of bids can also be considered to be beyond the control of the petitioner. Further, the price quoted

by the lowest bidder, M/s Mitsubishi Corporation in association with BHEL for the turnkey contract was Rs.694.69 crore, raising the project cost to Rs.877.87 crore, as against the revised cost estimate of Rs. 464.64 crore for the generating station prepared by the petitioner at October, 1991 price level. It was, therefore, considered reasonable to enter into negotiations in consultation with CEA, Ministry of Power, Department of Economic Affairs, Ministry of Industry, etc. to bring down the cost of the project. We find that these negotiations were done in good faith to bring reduction in the capital cost of the generating station. As such, this delay in placement of orders for main plant equipment, can be considered beyond the control of the petitioner.

Delay in establishment of letter of credit in favour of lowest bidder, M/s Mitsuibishi (5 months)

16. Subsequent to CCEA approval of RCE-1, the contract was awarded to Mitsubishi-BHEL in May 1992. The contractual zero date, however, could be reckoned from November 1992, with the establishment of letter of credit and release of initial advance as per the terms of contract. This delay occurred on account of complying with various formalities in establishment of letter of credit and mainly due to inadequacy of budgetary support from the Govt. of India for releasing the advance to the contractor. Thus, there was a procedural delay of 5 months from the date of CCEA approval to the Contractual Zero date. This can also be considered beyond the control of the petitioner.

Deviation in the implementation schedule (9 months)

17. The commissioning schedule as per original investment approval was 31 months. However, the lowest bidder indicated a timeframe of 40 months to complete

the project. Therefore, this extension of the commissioning schedule by 9 months can also be considered beyond the control of the petitioner.

Delay during construction period (37 months)

18. Considering 40 months commissioning schedule from the date of Contractual Zero date of November 1992, the generating station should have been completed and declared under commercial operation by February 1996. The actual date of commercial operation is 1.4.1999, resulting in a further delay of 37 months during construction.

19. The petitioner vide affidavit dated 6.5.2005 has submitted the reasons for this delay during the construction period. The delay as per the submission of the petitioner is on the following counts for which the petitioner has provided necessary documentary evidence-

(a) The equipment started reaching the Calcutta port by sea from October 1993 onwards. This equipment was to be transported by road from Calcutta to the project site at Kathalguri via North Bengal. However, there was trailers strike due to which the transportation of the equipment was delayed.

(b) During October 1993, there was severe flood in North Bengal, due to which the roads were badly damaged and movement of heavy traffic was not possible. The matter was pursued with Public Works Deptt., West Bengal but the road improvement works were unduly slow.

(c) Indefinite strike called by Dock workers from 4.4.1994. The items arrived by sea were thus blocked in the port till the end of the strike. The petitioner continued its pressure on the Cargo operator, ABC India Ltd. to move its cargo at the earliest.

(d) Most of the equipment to be transported by sea had been shipped by the end of the year 1994. However, before the balance equipment (minimum portion) could be shipped, there was a major earthquake in Kobe port in Japan, which delayed the transshipment by three months.

(e) Apart from the normal flood that Assam experiences every year, there was a severe flood in August 1995 which inundated the entire Dibrugarh district, where the project is situated.

(f) Adverse Law and Order Situation: Throughout the execution of the project, the law and order situation in and around the project was never normal. The petitioner has cited the following instances, duly supported by documentary evidence to prove its point:

  (i) The gravity of extremist activities around the project site could be seen from the major crack down on the ULFA HQ located in Lakhipathar, (about 10 kms from the project site) by Indian Army with "Operation Bajrang" on the 27th November 1990.

  (ii) A copy of the secret message dated 5.8.1994 from the Ministry of Power, Govt. of India to Heads of all PSUs under the Ministry instructing Project Authorities to take up additional security measures, which included prohibition of traveling at night. As most of the workers including BHEL Engineers and the Engineers/supervisors of other contractors were staying at Tinsukia Town, the working hours were drastically reduced.

(iii) Further, the sub-contractors of Mitsubishi-BHEL and Civil Package Contractors had to depend on whatever skilled/semi-skilled workers were available locally for execution of the work, as real skilled and experienced workers as well supervisors from outside the State were reluctant to come to the project due to adverse law and order situation. Apart from the extremist problem, there were regular problems faced by the turn-key as well as sub-contractors from the local people pressurizing them not to induct sub-contractors and workers from outside the State, but to give it to the local contractors and workers, irrespective of their capability.

(iv) Because of the deteriorated law and order situation, Govt. of Assam declared the project area as "Protected Area" on 8.6.1995 for one year. Even after one year, the situation did not improve and on 14.10.1996, the project area was declared "Protected Area" once again.

(v) The major incidents of adverse law and order situation have been mentioned and that there was constant fear in the minds of the workers throughout the project execution period, which reduced the output.

(vi) Concluding on the adverse law and order situation, the petitioner has submitted that the situation cannot be quantified exactly in terms of the man hours alone. Such incidents have wide range of repercussions causing reduction of output, slower mobilization, reluctance of experts etc., which are not quantifiable

(g) Frequent Bandh Calls - As per submission of the petitioner, frequent bandh calls by a range of organizations having major influence in and around the project area led to recurrent stoppage of works. Throughout the period of erection and commissioning activities of the project, bandh calls were the order of the day. These bandh calls were sometimes associated with violence, which led to panic amongst workers every time a bandh was called. Since the workers were staying at Tinsukia, the bandh calls had a double affect on the actual work output. For example, if a bandh was called for a day, the actual stoppage of work would amount to any where between two to four days, depending on the incidents of violence. Thus, on the days prior to the bandh call and after the bandh call, although the project execution was going on, the output of the workers was reduced to almost half as compared to the actual capability of the workers. The petitioner has referred to the report of BHEL on the time delay of the project, which indicates that the total no. of bandhs during the execution period was 84. Effectively, this caused a loss of (84 X 3 = 252 days). Considering 300 working days a year, the bandhs alone could account for a delay of 10 months.

(h) Torrential Rains - The period of execution of the project saw maximum rainfall. Throughout the period, torrential rains caused absence of BHEL workers for a total of 166 days.

20. The above reasons cited by the petitioner to explain delay of 37 months during construction period have been duly substantiated. In view of the submissions of the petitioner as above and relevant documentary evidence, we are of the view that the delay was beyond the control of the petitioner. As such, the cost overrun on account of this delay of 37 months also during the construction period cannot be attributed to the petitioner.

Cost overrun

21. The original investment approval of Rs. 203.17 crore was in November 1987. The investment approval was revised in May 1992 which was based on the finalised prices with the lowest bidder after protracted negotiations and rearranging of tender packages. The revised approval was for a project cost of Rs.1014.07 crore, including IDC of Rs.118.30 crore at a price level of 3rd quarter 1991. The Central Government through RCE–2 revised the investment approval to project cost of Rs.1347.57 crore, including IDC of Rs.86.49 crore and WCM of Rs.15.41 crore at a price level of 1st quarter 1996. Further, the Central Government through RCE-3 revised the investment approval to Rs.1532.32 crore, including IDC of Rs. 152.81 crore and WCM of Rs.16.75 crore. The cost over-run between RCE-1 (estimate at the time of placement of order) and RCE-3 (completion estimate) is being looked into to find out any unjustified abnormal increase. The necessary details in this regard are extracted below:

(Rs. In crore)

Price Level	**RCE-1 3rd qtr.1991**	**RCE-3 As in March 1999**	**Variation**	**% increase**
Project cost	1014.07	**1532.32**	518.25	49.45

22. The break-up of this increase of Rs.518.25 crore as provided in the petition is as follows-

(Rs. in crore)

Sl. No.	Description	Between RCE-I & RCE-II	Between RCE-II & RCE-III	Amount of variation
A	**Increase in cost**			
1	Main plant Civil works cost	52.17	5.50	57.67
2	Land and other non-plant civil works cost	5.73	0.00	5.73
3	Contractual price variation in the turn-key contract of BHEL	58.82	16.24	75.06
4	Inland transportation cost	2.71	0.00	2.71
5	Retainer consultancy award due to revised schedule	2.13	0.00	2.13
6	Contractual price variation in Gas transportation facilities	0.40	0.00	0.40
7	Due to changes in Deemed export benefits scheme	32.79	0.00	32.79
8	Separate award for design and engineering of civil works	6.85	0.00	6.85
9	Establishment , audit & Accounts charges	-12.28	0.00	-12.28
10	Establishment & Contingencies	0.00	37.35	37.35
	Sub Total (A)	**149.32**	**59.09**	**208.41**
	Other Increases			
B.	Financial charges	9.72	0.00	9.72
C.	Initial spares	0.00	42.86	42.86
D.	Exchange rate variation	189.05	0.10	189.15
E.	Changes in taxes & duties	0.49	15.04	15.53
F.	Increase in IDC	-31.81	66.32	34.51
G.	WCM	15.41	1.34	16.75
	Total (A to G)	332.18	184.75	516.93
H.	Variation unexplained	1.32	0.00	1.32
	Grand Total	**333.50**	**184.75**	**518.25**

23. This increase of Rs. 518.25 crore includes WCM of Rs.16.75 crore and initial spares of Rs.42.86 crore which were not envisaged in RCE-1. The increase in hard cost is of the order of Rs.208.41 crore out of total increase of Rs.518.25 crore and is on account of contractual price variations, additional scope and escalation in prices

over a period of seven years and appears to be in order. The increase in taxes and duties are consequential to increase in hard cost. FERV and increase in IDC are consequential to time overrun.

24. However, while explaining the above variation, the petitioner has not explained a variation of Rs. 1.32 crore. After excluding this amount of Rs. 1.32 crore from the approved cost of Rs.1515.57 crore the capital cost of Rs.1514.25 crore is to be taken into account.

Net revenue from Sale of Infirm Power-

25. The petitioner was asked to submit the details of the infirm power sold and the corresponding revenue earned. The petitioner has indicated that infirm power to the tune of 8.04 MU @ 180.23 paise/kWh and 9.02 MU @ 225 paise/kWh was sold, earning revenue of Rs.3.48 crore . The energy charge based on the prevailing prices of gas at that time and the computations furnished at the NEREB forum, was 36 paise/kWh. Hence the net revenue earned over and above the fuel cost works out to Rs. 2.87 crore . This will also be deducted from the actual capital expenditure.

Capital cost for the purpose of tariff-

26. As per reconciliation of accounts furnished by the petitioner, the actual capital expenditure in the respective year from the year of the date of commercial operation is as follows-

(Rs. in crore)

Year	Opening Gross Block	Add. Cap. Expenditure	Closing Gross Block
1999-00 (Year of commercial operation)	776.96	670.47	1447.43
2000-01	1447.43	(-)11.72	1435.71
2001-02	1435.71	5	1440.71
2002-03	1440.71	13.79	1454.50

27. The actual capital expenditure as on 31.3.2003 is Rs.1454.50 crore. After deducting this net revenue of Rs.2.87 crore from sale of infirm power from this actual expenditure as on 31.3.2003, the capital expenditure works out as Rs.1451.63 crore.

28. The capital cost of Rs.1451.63 crore as on 31.3.2003 after making adjustments for net revenue from sale of infirm power (including additional capitalisation in the subsequent years due to balance works/payments and initial capital spares of Rs.19.96 crore) is less than the capital cost of Rs.1514.25 crore found justified. Therefore, capital cost for the purpose of tariff has been taken as Rs.1451.63 crore as on 1.4.2003.

ADDITIONAL CAPITALISATION

29. The notification dated 26.3.2001 provides that tariff revisions during the tariff period on account of capital expenditure within the approved project cost incurred during the tariff period may be entertained by the Commission only if such expenditure exceeds 20% of the approved cost. In all cases, where such expenditure is less than 20%, tariff revision shall be considered in the next tariff period.

30. Additional capitalisation of Rs.10.25 crore during 2003-04 being less than 20% of the approved cost, has not been considered for the present tariff determination.

However, this will be considered for the purpose of capital cost for the period 2004-09. The capital cost as on 1.4.2004 for the purpose of tariff for the period 2004-09 would be Rs. 1461.88 crore

DEBT-EQUITY RATIO

31. As per the notification dated 26.3.2001, 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.

32. The letter dated 14.2.2000 regarding approval of RCE of the project is silent regarding Debt:-Equity ratio, the following debt- equity ratio is worked out from debt and equity amount mentioned in Ministry of Power letter dated 23.1.2003 on rescheduling of loan and equity for the project:

(Rs. in lakh)

	Total	**%age**
Debt amount	75706	49.41%
Equity amount	77526	50.59%
	153232	100%

33. The debt-equity ratio claimed by the petitioner is 1:1. As the actual debt-equity ratio seen from the above table also works out in the ratio of 1:1 approximately, debt-equity in ratio claimed by the petitioner has been considered. In this manner debt and equity amounts considered are Rs. 72582.00 lakh each, against the total capital cost of Rs. 145163.00 lakh.

TARGET AVAILABILITY

34. Based on the notification dated 26.3.2001, full fixed charges are recoverable at the target availability of 80%. Therefore, the target availability of 80% has been considered in the working.

RETURN ON EQUITY

35. As per the notification dated 26.3.2001, return on equity shall be computed on the paid up and subscribed capital and shall be 16% of such capital. The petitioner has claimed return on equity @ 16%. In our computation of tariff, return on equity @ 16% per annum has been allowed.

36. The return on equity has been worked out as under:

(Rs in lakh)

Particulars	**2003-04**
Opening Balance	72582
Increase/ Decrease due to FERV	0
Increase/ Decrease due to Additional Capitalisation	0
Closing Balance	72582
Average	72582
Rate of Return on Equity	**16.00%**
Return on Equity	11613

INTEREST ON LOAN

37. 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.

38. 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 cumulative repayment of loan up to 31.3.2003 has been taken as per the loan details given by the petitioner in the petition.

(b) The annual repayment amount for the year 2003-04 has been worked out as per the methodology followed by the Commission in cases pertaining to other central power sector utilities. 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) The loan drawls up to 31.3.2003 have been considered.

(d) Arrangers fees, Processing fees, Commitment fees claimed as financing charges against HUDCO loan and Legal Advisory fees & Trusteeship Acceptance fees claimed against PSU 8^{th} & 9^{th} series Bonds have not been allowed.

(e) On the basis of actual rate of interest on actual loans, the weighted rate of interest on average loan has been worked out and the same has been applied on the normative average loan during the year to arrive at the interest on loan.

(f) In the present case, some of the GOI loans having higher rate of interest were pre-paid during 2002-03 by taking loans from HUDCO, United Bank of India (UBI) and PSU Bonds of 8^{th} and 9^{th} series. Subsequently, HUDCO loan and the balance GOI loan were repaid by syndicated loan having floating rate of interest on 19.3.2004.

The Commission in its order dated 13.12.2002 in petition no 94/2002, and other petitions of NTPC stations observed that the benefit of re-financing should be passed on to the beneficiaries and through them the ultimate consumer when a costlier loan is re-financed through cheaper loan with fixed rate of interest.

In line with the Commission's above decision, the interest rate applicable on re-financed /substituted loans with fixed rate of interest have been considered in the working. As such, the interest rate applicable on HUDCO loan, UBI loan and PSU Bonds of 8th and 9th series have been considered in the working.

The re-financing/substitution of HUDCO loan and balance GOI loan by syndicated loan having floating rate of interest has not been considered in the working as the above order dated 13.12.2002 permitted passing of the benefits to the beneficiaries only when costlier loan is re-financed through cheaper loan with fixed rate of interest. As such, the interest on HUDCO loan has been worked out by considering the original loan and its repayment schedule.

On analysis of terms and conditions of refinanced loans , it is noted that the total interest on loan after considering refinancing is lower than the total interest on loans without considering refinancing .

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

COMPUTATION OF INTEREST ON LOAN

(Rs. in lakh)

	2003-04
Gross loan-Opening	72582
Cumulative repayments of Loans up to previous year	**18623**
Net loan-Opening	53959
Increase/ Decrease due to FERV	0
Increase/ Decrease due to Additional Capitalisation	0
Total	53959
Repayments of Loans during the year	**2173**
Net loan-Closing	51786
Average Net Loan	52872
Rate of Interest on Loan	**10.70%**
Interest on loan	5659

DEPRECIATION

40. 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.

41. The weighted average depreciation rate for the tariff period has been calculated by taking the individual assets of gross block as on 31.3.2003 and the respective depreciation rates as per the notification dated 26.3.2001.The weighted average depreciation rate works out as 4.82 % as against the weighted average rate of 4.86% claimed by the petitioner..

42. The exact depreciation recovered in the tariff since the date of commercial operation of the generating station cannot be ascertained as the exact break up is not known. However, the cumulative depreciation up to 31.3.2003 as per balance sheet is indicated as Rs.57273 lakh. Since earlier as per Ministry of Power notification dated 30.3.1992, the rate of depreciation for the tariff purpose and accounts purpose was same, we have taken note of this cumulative depreciation as per the books of accounts as the depreciation recovered in the tariff up to 31.3.2003.

43. Depreciation has been allowed at opening gross block of Rs. 145163.00 lakh. The petitioner is entitled to an amount of Rs.6990.00 lakh during 2003-04 on account of depreciation. The necessary calculations in support of the amount of depreciation allowed are given hereunder:

(Rs. in lakh)

	2003-04
Capital Cost	
Capital Cost as on 31.3.2003	145163
Opening Balance	145163
Increase/ Decrease due to FERV	0
Increase/ Decrease due to Additional Capitalisation	0
Closing Balance	145163
Rate Of Depreciation	4.82%
Depreciation	**6990**

ADVANCE AGAINST DEPRECIATION

44. 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.

45. The actual gross loan and actual repayment as on 1.4.2003 has been considered for computing Advance Against Depreciation. The petitioner is not entitled to claim any Advance Against Depreciation as shown below:

(Rs. in lakh)

	2003-04
1/12th of Loan(s)	6048
Scheduled Repayment of the Loan(s)	2173
Minimum of the above	2173
Depreciation during the year	6990
Advance Against Depreciation	0

O&M EXPENSES

46. As per the notification dated 26.3.2001, operation and maintenance (O&M) expenses, including insurance for the stations belonging to the petitioner, in the case of new thermal stations which have not been in existence for a period of five years, the Base O&M expenses shall be fixed at 2.5 percent of the actual capital cost as approved by the Authority or an appropriate Independent agency, as the case may be, in the year of commissioning and shall be escalated at the rate of 10 percent per annum for subsequent years to arrive at O&M expenses for the base year 1999-2000 level. Thereafter the Base O&M expenses shall be further escalated at the rate of 6 percent per annum to arrive at permissible O&M expenses for the relevant year.

47. In this particular case there was a time and cost overrun which have generally been found beyond the control of the petitioner. Working on the above principle O&M expenses for the year 2003-04 work out as 4559 lakh. But the mere cost overrun does not lead to increase in O&M expenses of the generating station. The Commission, vide its order dated 16.1.2004. in petition No.67/2003 (suo motu), while deciding the normative O&M expenses for small gas/combined cycle power stations for the period 2004-09, worked out an normalised figure of Rs. 8.66 lakh/MW for the year 2003-04

for Assam GBPS based on the actual expenses of the generating station up to 2000-01. It is considered justified to allow O&M expenses for the generating station in 2003-04 as 8.66 lakh/MW. This translates in O&M expenses of Rs. 2520 lakh for the year 2003-04.

INTEREST ON WORKING CAPITAL

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

(a) **Fuel Cost:** As per the notification dated 26.3.2001, 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 26.3.2001. The fuel cost allowed in working capital is given hereunder:

	2003-2004
Weighted Avg. GCV of Gas (kCal/SCM)	9272.51
Specific gas Consumption (SCM/kWh)	0.2427
Annual Requirement of gas (1000 SCM)	496204
Weighted Avg. Price of Gas (Rs./1000 SCM)	1620.00
Fuel Cost (Rs. in lakh)	8039
Fuel Cost - 1 month (Rs. in lakh)	**669.88**

(b) **O&M Expenses:** As per the notification dated 26.3.2001, operation and maintenance expenses for one month are permissible as a part of the working capital. Accordingly, O&M expenses for working capital have been worked out for 1 month of O&M expenses approved above.

(c) **Spares:** As per the notification dated 26.3.2001, maintenance spares at actuals subject to a maximum of 1% of the capital cost but not exceeding 1 year's requirements less value of 1/5th of initial spares already capitalised for first 5 years are required to be considered in the working capital. The spares consumption for 2003-04 has been worked out by first taking average of actual spares consumption of last 5 years i.e from 1998-99 to 2002-03 to arrive at the spares consumption figure for the year 2000-01 and thereafter escalating the same @ 6% every year to arrive at spares consumption figure for the year 2003-04. This methodology is similar to the methodology adopted by the Commission for working out spares consumption for NTPC Stations for the tariff period 2001-04. As the amount of initial spares stated to be capitalised by NEEPCO is Rs. 1996 lakh, the spares requirement for the purpose of working capital has been worked out 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. However, in the working, the value of actual spares consumption/one year requirement as worked out above has been restricted to spares consumption claimed in the petition which is less. The calculations in support of spares allowed in working capital are as under:

(Rs. in lakh)

Capitalised initial spares	**1996**	**1998-99**	**1999-2000**	**2000-01**	**2001-02**	**2002-03**	**2003-04**
		1.09	798.16	1362.60	258.96	1330.29	894
1% of capital cost							1452
Min of above							894
1/5th of initial spares							399
Spares for working capital							494
Spares as claimed in the petition							288
Spares considered for working capital							288

(d) **Receivables:** As per the notification dated 26.3.2001, receivables will be equivalent to two months average billing for sale of electricity calculated on normative Plant Load Factor/Target Availability. The receivables have been worked out on the basis of two months of fixed and variable charges. The supporting calculations in respect of receivables are tabulated hereunder:

Computation of receivables component of Working Capital

(Rs. in lakh)

	2003-2004
Variable Charges	
Gas(Rs/kWh)	0.4053
Rs./kwh	**0.4053**
Variable Charges per year	**8038.51**
Variable Charges -2 months	**1339.75**
Fixed Charges - 2 months	**4576**
Receivables	**5915**

49. The interest rate of 9.50% as claimed by the petitioner has been considered as the rate of interest on working capital.

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

Calculation of Interest on Working Capital

(Rs. in lakh)

	2003-2004
Fuel Cost	670
O & M expenses	210
Spares	288
Receivables	5915
Total Working Capital	7083
Rate of Interest	9.50%
Interest on allowed Working Capital	**673**

ANNUAL FIXED CHARGES

51. The annual fixed charges for the period 1.4.2003 to 31.3.2004 allowed in this order are summed up as below:

(Rs. in lakh)

	Particulars	2003-2004
1	Interest on Loan	5659
2	Interest on Working Capital	673
3	Depreciation	6990
4	Advance against Depreciation	0
5	Return on Equity	11613
6	O & M Expenses	2520
	TOTAL	**27454**

ENERGY/VARIABLE CHARGES

52. The Commission vide its order dated 10.10.2003 in IA 38/2003 for provisional energy charges allowed the petitioner to claim these charges @ 40.53 paise/kWh on provisional basis.

53. The provisional energy charge allowed was based on the following operational norms, weighted average GCV and price of the gas for the months of March, April and May, 2003-

Description	Unit	
Capacity	MW	291.00
Gross Station Heat Rate	KCal/kWh	2250.00
Aux. Energy Consumption	%	3.00
GCV of Gas (average)	KCal/SCM	9272.51
Price of Gas (average)	Rs./1000SCM	1620.00
Rate of Energy Charge ex-bus per kWh Sent	Paise/kWh	40.53

54. The provisional energy charge of 40.53 paise/kWh earlier approved are hereby confirmed.

55. 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) based on monthly weighted average as per the formula given below :-

$$\mathbf{FPA} = \frac{10 \times (SHR_n) \times \left[(P_m/K_m) - (P_s/K_s)\right]}{(100 - AC_n)}$$

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 per PSL for the month in Rs. / 1000 SCM

K_m = Weighted average gross calorific value of Gas for the month in Kcal/ SCM

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

K_s =Base value of gross calorific value of Gas as taken determination of base energy charge in tariff order in Kcal/ SCM

(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 3225k.cal/kwh and aux. energy consumption of 1%.

(iii) The energy charges shall be finally adjusted on annual basis as per actual annual average values of operating parameters achieved for the station, that is, gross station heat rate and auxiliary energy consumption, provided any or all of the actual operating parameters are lower than their respective normative values indicated in the table. The annual energy charge adjustment shall be done as per the formula given below:

AECA = $(P - Q - R) \times 10^{-9}$

Where,

AECA	-	Annual Energy Charge Adjustment in Rs. crore ore
P	-	Energy charge payable for the year based on operational parameters (Actual or normative whichever is lower) and weighted average price and GCV of fuels for the year in paise.
Q	-	Total amount recovered as monthly fuel price adjustment for the year in paise.
R	-	Total amount recovered as base energy charge for the year in Paise

And,

$$P = (ESO_{Annual}) \times 10 \times \left[\frac{\{(SHR_A) \times (P_{Annual}) / (K_{Annual})\}}{\{100 - (AC_A)\}} \right]$$

$$Q = \sum_{mi=1}^{12} (FPA_{mi}) \times (ESO_{mi})$$

$$R = (ESO_{Annual}) \times BEC$$

Where;

ESO_{Annual} - Energy sent out in the year in kWh sent out

SHR_A - Actual yearly weighted average gross station heat rate in kCal/kWh generated

P_{Annual} - Weighted average price of Gas or Liquid fuel for the year in Rs. / 1000 SCM of Rs./ KL or Rs./MT

K_{Annual} - Weighted average GCV of Gas or Liquid fuel for the year in Kcal/ SCM or kCal/ Litre or kCal/ Kg

FPA_{mi} - Fuel price adjustment for the i^{th} month in paisa/kwh sent out

ESO_{mi} - Energy sent out for the i^{th} month in kwh sent out

BEC - Base Energy Charge as per tariff order in Paise/kWh sent out

AC_A - Actual average Auxiliary Consumption of the generating station for the year in percentage

56. In case the adjustment period is less than a year, adjustment shall be done for the actual period.

57. 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, 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.

58. This order disposes of Petition No 33/2003.

Sd/-	Sd/-	Sd/-
(A.H. JUNG)	**(K.N. SINHA)**	**(ASHOK BASU)**
MEMBER	**MEMBER**	**CHAIRMAN**

New Delhi dated the 22nd August 2005