CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Coram
1. **Shri Ashok Basu, Chairperson**
2. **Shri Bhanu Bhushan, Member**
3. **Shri A.H. Jung, Member**

Petition No. 171/2004

In the matter of

Approval of generation tariff of Loktak Hydroelectric Project for the period 1.4.2004 to 31.3.2009 and impact of additional capitalization during 2001-04.

And in the matter of

National Hydroelectric Power Corporation Ltd. … **Petitioner**

Vs

1. Assam State Electricity Board, Guwahati
2. Department of Power, Govt. of Arunachal Pradesh, Itanagar
3. Electricity Department, Govt. of Mizoram, Aizawl
4. Electricity Department, Govt. of Tripura, Agartala
5. Meghalaya State Electricity Board, Shillong
6. Electricity Department, Govt. of Manipur, Imphal
7. Electricity Department, Govt. of Nagaland, Kohima **…Respondents**

The following were present

1. Shri S.D. Tripathi, NHPC
2. Shri Naveen Samriya, NHPC
3. Shri Ansuman Rao, NHPC
4. Shri K. Goswami, ASEB
5. Shri H.M.Sarma, ASEB
6. Shri R.K.Kapoor, ASEB
7. Shri M.Deb Barma, TSECL

ORDER
(DATE OF HEARING : 6.7.2006)

This petition has been filed by the petitioner, National Hydroelectric Power Corporation Ltd., (NHPC), a generating company owned and controlled by the Central Government, for approval of tariff in respect of Loktak Hydroelectric Project (3x35 MW) (hereinafter referred to as "the generating station") in the State of Manipur for the period from 1.4.2004 to 31.3.2009 based on the Central Electricity Regulatory

Commission (Terms and Conditions of Tariff) Regulations, 2004, (hereinafter referred to as "the 2004 regulations")

2. The generating station was commissioned in June 1983.

3. The revised investment approval for the generating station was accorded by the Central Government in Ministry of Power vide letter dated 23.1.1984 at a cost of Rs. 12672 lakh, including IDC of Rs.1976 lakh.

4. The tariff for the generating station for the period ending 31.3.2004 was approved by the Commission vide its order dated 1.11.2002 in Petition No 59/2001 based on capital cost of Rs. 13620.00 lakh as on 31.3.2001. Subsequently, by a separate order dated 2.3.2006 in Petition No 93/2005, the Commission has approved additional capital expenditure of Rs.820.05 lakh for the period 1.4.2001 to 31.3.2004, and after accounting for the assets amounting to Rs. 238.26 lakh not in use, the Commission has arrived at the capital base of Rs.14201.79 lakh as on 31.3.2004, for the purpose of determination of tariff from 1.4.2004 and onwards. The details of the additional capital expenditure approved are given hereunder:

(Rs. in lakh)

Year	Additional Capital Expenditure
2001-2002	131.42
2002-2003	432.59
2003-2004	256.04
Total	**820.05**

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

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	393.81	393.81	393.81	393.81	393.81
Interest on Loan	52.06	52.06	51.76	45.20	20.84
Return on Equity	960.83	960.83	960.83	960.83	960.83
Advance Against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	150.34	156.20	162.34	168.66	174.99
O & M Expenses	3254.80	3384.99	3520.39	3661.21	3807.65
TOTAL	**4811.84**	**4947.89**	**5089.13**	**5229.71**	**5358.12**

6. The details of interest on working capital furnished by the petitioner and its claim for interest thereon are summarised hereunder:

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance spares	393.57	417.18	442.22	468.75	496.87
O & M expenses	271.23	282.08	293.37	305.10	317.30
Receivables	801.97	824.65	848.19	871.62	893.02
Total Working Capital	1466.77	1523.91	1583.78	1645.47	1707.19
Interest Rate	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	150.34	156.20	162.34	168.66	174.99

7. The reply to the petition was filed by Assam State Electricity Board and Tripura State Electricity Corporation Limited. The other respondents have not filed their reply. The petitioner has published notices in accordance with the procedure specified by the Commission. However, no objections or suggestions have been received from the general public in response to these notices.

8. There is a general issue regarding treatment of depreciation when it exceeds repayment of loan in a year. The Commission in its separate order dated 9.5.2006 in Petition No.197/2004 (NHPC Vs PSEB and Others) has decided that when depreciation recovered in a year is more than the amount of repayment during that year, the entire amount of depreciation is to be considered as repayment of loan for tariff computation. Similar approach has been adopted by the Commission, while approving tariff in respect of the transmission assets of NTPC and PGCIL, and in the interest of consistency and continuity of approach same methodology needs to be followed in the present case also. Accordingly, the decision arrived at in the order dated 9.5.2006 in Petition No.197/2004 will be followed in this case.

CAPITAL COST

9. As per the second proviso to Regulation 33 of the 2004 regulations in case of the generating stations existing up to 31.3.2004, the capital cost admitted by the

Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

10. The petitioner has considered the capital expenditure of Rs. 14621.46 lakh after adding the additional capital expenditure of Rs. 1001.46 lakh for the period 2001-04 to the capital expenditure of Rs.13620.00 lakh admitted by the Commission in its order dated 1.11.2002. However, as mentioned in para 4 above, the Commission had deliberated this issue in Petition No. 93/2005 and vide order dated 2.3.2006 therein had allowed additional capitalisation of Rs.820.05 lakh only. The petitioner has not claimed additional capitalisation on account of FERV as there is no foreign loan.

11. Based on the above, the gross block as on 1.4.2004 comes to Rs.14201.79 lakh as per details given hereunder:

(Rs. in lakh)

Capital cost admitted as on 31.3.2001.	13620.00
Additional Capitalization for the years 2001-2004	820.05
Assets not in use	(-) 238.26
Opening capital cost as on 1.4.2004	**14201.79**

DEBT-EQUITY RATIO

12. Clause (1) of Regulation 36 of the 2004 regulations, as amended, provides as under:

> " 36. (1) In case of the existing generating stations, debt-equity ratio considered by the Commission for the period ending 31.3.2004, shall be considered for determination of tariff with effect from 1.4.2004:
>
> Provided that in cases where the tariff for the period ending 31.3.2004 has not been determined by the Commission, debt-equity ratio shall be as may be decided by the Commission:
>
> Provided further that in case of the existing generating stations where additional capitalisation has been completed on or after 1.4.2004 and admitted

by the Commission under Regulation 34, equity in the additional capitalization to be considered shall be,-

(a) 30% of the additional capital expenditure admitted by the Commission, or

(b) equity approved by the competent authority in the financial package, for additional capitalization, or

(c) actual equity employed,

whichever is the least:

Provided further that in case of additional capital expenditure admitted under the second proviso, the Commission may consider equity of more than 30% if the generating company is able to satisfy the Commission that deployment of such equity of more than 30% was in the interest of general public."

13. The petitioner has claimed tariff on the basis of debt and equity in the ratio of 53.06:46.94 as considered by the Commission by order dated 1.11.2002 in Petition No. 59/2001. The amount of additional capitalisation as claimed has been added to the loan and equity as on 1.4.2004, on the same basis.

14. It is noted that the petitioner in the petition has shown the capital cost, and financing of capital cost as under:

Particulars	Amount (Rs. in lakh)	Percentage
Capital cost as on 31.3.2004	14621.46	100.00%
Equity	6393.00	43.72%
GOI loan	7213.27	49.33%
M-Series Bonds	13.73	0.09%
Internal resources	1001.46	6.85%
Total Funding	**14621.46**	**100.00%**

15. Debt and equity allowed to finance the capital expenditure in the Commission's order dated 1.11.2002 in Petition No. 59/2001 has been considered in calculation of

tariff. Additional capitalisation for the years 2001-02 to 2003-04 amounting to Rs. 820.05 lakh, decapitalization amounting to Rs.238.26 lakh on account of the assets not in use declared by the petitioner as on 1.4.2004 have been segregated in such a way, so as to keep overall debt-equity ratio close to the ratio of 70:30 as the approved debt-equity ratio or the actual equity employed have not been given by the petitioner. Accordingly, the adjusted debt-equity ratio is 54.98:45.02. In this manner equity component for tariff purpose, as on 1.4.2004 works out to Rs.6393.00 lakh.

NORMATIVE CAPACITY INDEX

16. Since the generating station is operating as storage station, its annual normative capacity index as per the 2004 regulations shall be taken as 85 % for the tariff period 2004-09. There shall be prorata recovery of capacity charge in case the generating station achieves capacity index below the normative level. At zero capacity index during any month, no capacity charge shall be payable.

RETURN ON EQUITY

17. As per clause (iii) of Regulation 38 of the 2004 regulations, return on equity shall be computed on the equity base determined in accordance with regulation 36 @ 14% per annum. Equity invested in foreign currency is to be allowed a return in the same currency and the payment on this account is made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

18. The petitioner has claimed return @ 14% on an equity of Rs.6863.09 lakh, based on equity admitted by the Commission in order dated 1.11.2002 and after accounting for notional equity on account of additional capitalization on works for the period 1.4.2001 to 31.3.2004 claimed in the petition.

19. For the reasons given in para 15 above, equity as on 1.4.2004 works out to Rs. 6393.00 lakh and the petitioner's entitlement towards return on equity @ 14% works out to Rs. 895.02 lakh per year during the tariff period.

INTEREST ON LOAN

20. Clause (i) of regulation 38 of the 2004 regulations *inter alia* provides that-

(a) Interest on loan capital shall be computed loan-wise on the loans arrived at in the manner indicated in regulation 36;

(b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per regulation 36 minus cumulative repayment as admitted by the Commission for the period up to 31.3.2004. The repayment for the period 2004-09 shall be worked out accordingly on normative basis;

(c) The generating company shall make every effort to refinance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such refinancing shall be borne by the beneficiaries;

(d) The changes to the loan terms and conditions shall be reflected from the date of such refinancing and benefits passed on to the beneficiaries;

(e) In case of dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment ordered by the Commission to the generating company during pendency of any dispute relating to re-financing of loan;

(f) In case any moratorium period is availed of by the generating company, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.

(g) The generating company shall not make any profit on account of re-financing of loan and interest on loan;

(h) The generating company may, at its discretion, swap loans having floating rate of interest with loans having fixed rate of interest, or vice-versa, at its own cost, and gains or losses as a result of such swapping shall accrue to the generating company:

Provided that the beneficiaries shall be liable to pay interest for the loans initially contracted, whether on floating or fixed rate of interest.“

21. The petitioner has claimed interest on loan in the following manner:

(i) Gross notional loan, up to previous year as admitted by the Commission in the order dated 1.11.2002 has been adjusted after giving due consideration for notional loan of Rs. 531.37 lakh arising out of additional capitalization and taken as the opening balance as on 1.4.2004.

(ii) On the basis of actual rate of interest on actual average loan, the weighted average rate of interest on loan has been worked out.

(iii) Repayment of notional loan arising out of additional capital expenditure is considered in year 2007-08 and 2008-09 and M-series loan repayment is considered according to the schedule

(iv) Gross loan as corrected has been considered as notional loan and the weighted average rate of interest on loan for respective years as per above has been applied to average notional loan during the year to arrive at interest on loan. For year 2007-08 and 2008-09, interest rate of M-Series loan (9.55%) is applied on the remaining notional loan.

22. The petitioner has submitted loan details up to 31.3.2004 for the tariff period 2004-09 on 2.9.2005, 14.11.2005 and 20.12.2005. Accordingly, loan allocation statement as on 1.4.2004 has been prepared by considering:

(a) Gross loan up to 31.3.2004, repayment up to 31.3.2004 and outstanding loan as on 31.3.2004 as worked out from the loan allocation statement for the year 2003-04.

(b) Installments of various loans for the year 2004-09 as furnished by the petitioner.

(c) Allocation of the above instalments on the basis of outstanding loan as on 31.3.2004.

(d) Applicable rate of interest as on 1.4.2004.

23. In our calculation, the interest on loan has been worked out as detailed below:

(i) Details of net outstanding loan as on 31.3.2004, repayment schedule for the period 2004-09, rate of interest as on 1.4.2004, exchange rate as on 31.3.2004 etc. have been taken from above loan allocation statement worked out as above for working out weighted average rate of interest.

(ii) Gross notional loan and cumulative repayment up to 31.3.2004 have been taken from the order dated 1.11.2002.

(iii) Notional loan arising out of additional capitalisation during the years 2001-04 has been considered.

(iv) Repayment of notional loan arising due to additional capitalisation during the years 2001-04 has been worked out in proportion to the repayment of actual loan during these years.

(v) Tariff has been worked out considering normative loan and normative repayments. Once the normative loan is arrived at, it is considered for all purposes in the tariff. Normative repayment is worked out by the following formula :

$$\frac{\text{Actual repayment of actual loan during the year}}{\text{Opening balance of actual loan during the year}} \times \text{Opening balance of normative loan during the year}$$

(vi) Moratorium in repayment of loan has been considered with reference to normative loan and if the normative repayment of loan during the year is less than the depreciation including AAD during the year, then depreciation including AAD during the year is deemed as normative repayment of loan during the year, as stated in para 8 above.

(vii) Weighted average rate of interest on actual loan worked out as above has been applied to the notional average loan during the year to arrive at interest on loan.

(viii) GOI loan amounting to Rs. 13.73 lakh has been refinanced by the petitioner with M-Series bonds in the year 2001-02 as indicated below:

(Rs. in lakh)

Original loan			Refinanced loan		
Name	Amount	Interest rate	Name	Amount	Interest rate
GOI	13.73	14.50%	Bonds-M-Series	13.73	9.55%

(ix) In the present petition, no refinancing has been considered and GOI loan has been considered as repaid as per the original schedule.

(x) The interest rate of last repaid loan (14.50% as per loan reconciliation details submitted by the petitioner) has been considered for calculating the interest on loan arising out of additional capital expenditure.

24. The computations of interest on loan by applying weighted average interest rate are appended hereinbelow:

COMPUTATION OF INTEREST ON LOAN

(Rs. in lakh)

		2004-05	2005-06	2006-07	2007-08	2008-09
Gross Loan as per last Order	7227.00					
Addition due to Additional Capitalisation	581.79					
Addition due to FERV	0.00					
Gross Normative Loan	7808.79	7808.79	7808.79	7808.79	7808.79	7808.79
Cumulative Repayment upto Previous Year		7358.42	7808.79	7808.79	7808.79	7808.79
Net Loan-Opening		450.37	0.00	0.00	0.00	0.00
Repayment during the year		450.37	0.00	0.00	0.00	0.00
Net Loan-Closing		0.00	0.00	0.00	0.00	0.00
Average Loan		225.19	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest on Loan		14.5000%	14.5000%	0.0000%	0.0000%	0.0000%
Interest		32.65	0.00	0.00	0.00	0.00

DEPRECIATION

25. Sub-clause (a) of clause (ii) of Regulation 38 of the 2004 regulations provides for computation of depreciation in the following manner, namely:

(i) The value base for the purpose of depreciation shall be the historical cost of the asset.

(ii) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the historical capital cost of the asset. Land is not a depreciable asset and Its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government /Commission.

(iii) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.

(iv) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

26. The petitioner has claimed depreciation on the capital expenditure considered by it. As repayment of notional loan has been considered after repayment of M-series loan and up to year 2008-09, depreciation at weighted average rate of depreciation has been considered up to year 2008-09.

27. Capital cost considered for working out the weighted average rate of depreciation for 2001-04 tariff is as given by the petitioner in petition No.59/2001. As the admitted capital cost as on 1.4.2001 differs with the former cost, head-wise weights have proportionately been reduced to the admitted capital cost level as on 1.4.2001 to keep consistency in weighted average depreciation rate. Further, head-wise separation of additional capital expenditure, has been done and added to the capital expenditure of 1.4.2001 to arrive at the capital cost as on 31.3.2004. On the basis of this cost, the individual head-wise weights of depreciation have been determined for calculation of weighted rate of depreciation as on 31.3.2004.

28. New heads for Minor assets, miscellaneous assets, Communication and Telephones, Computers and Software and Temporary structures have been created. Depreciation rates for Minor assets and miscellaneous assets have been taken in line with Chamera-I HE project. For Communication and Telephones 6% depreciation rate has been considered. For Computers and other software and Temporary structures 18% depreciation rate has been considered.

29. As the loan (without taking into account the additional capitalization for the period 2001-04) was repaid fully in the year 2001-02, the balance useful life was

assumed to be 16 years for the year 2002-03 in the Commission's order dated 1.11.2002 in Petition No.59/2001. The same has been considered in continuation after the loan arising out of additional capital expenditure allowed gets repaid in the year 2005-06.

30. The Commission vide order dated 2.3.2006 in petition No. 93/2005 has approved deletion/decapitalisation of the assets worth Rs. 56.64 lakh from the capital cost of the generating station. Further, the assets worth Rs. 238.26 lakh have been declared to be not in use as on 1.4.2004. Against these deletions/decapitalisation and assets not in use, cumulative depreciation amounting to Rs. 119.77 lakh has been deducted on pro rata basis from cumulative depreciation/AAD recovered as on 31.3.2004, for determination of tariff in the present petition.

31. The gross depreciable value of the generating station is 0.9 x (Rs.14201.79 lakh – Rs. 39.89 lakh) = Rs. 12745.71 lakh. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs. 5648.23 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 7097.48 lakh which would be depreciated over the balance life of the assets, that is, within a period of 14 years.

32. The entire loan got repaid during 2001-02. However, due to additional capitalization during 2001-04, notional loan to the extent of Rs.581.79 lakh has accrued. The entire notional loan on account of additional capitalization, gets repaid in 2004-05 itself.

33. Accordingly, for the period 1.4.2004 to 31.3.2009 the depreciation works out to Rs.506.96 lakh each year by spreading the remaining depreciation over the balance useful life of the generating station:

(Rs. in lakh)

Details of Depreciation	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
As per order dated 1.11.2002	13620.00					
Addition during 2001-04 due to Additional Capitalisation	581.79					
Addition during 2001-04 due to FERV	0.00					
Gross Block as on 31.3.2004	14201.79	14201.79	14201.79	14201.79	14201.79	14201.79
Rate of Depreciation	2.57%					
Depreciable Value	90%	12745.71	12745.71	12745.71	12745.71	12745.71
Balance Useful life of the asset	14.0	14.0	13.0	12.0	11.0	10.0
Remaining Depreciable Value		7097.48	6590.52	6083.56	5576.59	5069.63
Depreciation		**506.96**	**506.96**	**506.96**	**506.96**	**506.96**

ADVANCE AGAINST DEPRECIATION

34. As per sub-clause (b) of clause (ii) of Regulation 56 of the 2004 regulations, in addition to allowable depreciation, the transmission licensee is entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan repayment amount as per regulation 56 (i) subject to a ceiling of 1/10th of loan amount as per regulation 54 minus depreciation as per schedule

35. It is provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year. It is further provided that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

36. The petitioner has not claimed Advance Against Depreciation. Accordingly, the petitioner is not entitled to Advance Against Depreciation.

O&M EXPENSES

37. According to clause (iv) of Regulation 38 of the 2004 regulations, in case of hydro generating stations which have been in operation for five years or more in the base year of 2003-04, O&M expenses shall be derived on the basis of actual

operation and maintenance expenses for the years 1998-99 to 2002-03, based on the audited balance sheets, excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission. The average of such normalized operation and maintenance expenses for the years 1998-99 to 2002-03 considered as operation and maintenance expenses for the year 2000-01 shall be escalated at the rate of 4% per annum to arrive at permissible operation and maintenance expenses for the base year 2003-04. The base year operation maintenance expenses shall be further escalated @ 4% per annum to arrive at the permissible operation & maintenance expenses for the relevant year of tariff period 2004-09.

38. The year-wise break-up of actual O & M expenses for the years 1998-99 to 2002-03 furnished by the petitioner based on which O & M expenses for the period 2004-05 to 2008-09 have been claimed is as follows:

(Rs. in lakhs)

S. No	Items	1998-99	1999-00	2000-01	2001-02	2002-03
	1	2	3	4	5	6
	Break-up of O&M expenses					
1	Consumption of Stores and Spares	8.70	14.11	20.38	41.91	30.77
2	Repair and Maintenance	97.21	99.45	189.70	451.31	268.66
3	Insurance	72.56	78.75	76.98	85.42	79.35
4	Security	17.06	25.68	16.88	18.47	18.44
5	Administrative Expenses					
	- Rent	0.11	0.34	0.54	1.27	1.79
	- Electricity Charges	10.58	1.48	4.94	0.97	16.72
	- Traveling and conveyance	20.46	15.08	29.83	48.81	45.61
	- Telephone, telex and postage	4.71	3.65	13.70	13.64	14.29
	- Advertising	3.04	0.03	0.91	1.87	1.01
	- Entertainment	0	0	0.03	0.53	0.32
	- Other expenses	36.75	48.64	173.89	52.71	78.21
	Sub-Total (Admn. Expenses)	75.65	69.22	223.84	119.80	157.95
6	Employee Cost					
	a) Salaries, wages and allowances	1453.98	1170.00	2333.12	2167.04	2788.71

	b) Staff welfare expenses	464.49	256.28	192.65	232.21	418.58
	c) Productivity linked incentive	0	0	42.63	45.67	45.31
	Sub-total	1918.47	1426.28	2568.40	2444.92	3252.50
7	Corporate office expenses allocation	19.31	25.20	27.40	28.32	58.02
8	**Total (1 to 7)**	**2208.97**	**1738.70**	**3123.56**	**3190.16**	**3865.80**
	LESS: Recovered , if any	3.06	2.77	5.97	8.81	13.15
9	Net Expenses	2205.92	1735.93	3117.59	3181.35	3852.65
	Less abnormal O&M expenses a) Siltation b) Overstaffing	152.55				
	Total O&M Expenses	2053.37	1735.93	3117.59	3181.35	**3852.65**

39. The petitioner has furnished the following details of the employees:

Executive	79	59	56	63	63
Non-executive	1001	923	856	819	781
Total	1080	982	912	882	844

40. Based on the methodology specified in the 2004 regulations, the petitioner has claimed the following O & M expenses for the tariff period 2004-09:

(Rs. in lakh)

2004-05	3261.77
2005-06	3392.25
2006-07	3527.93
2007-08	3669.05
2008-09	3815.81

41. Major contribution towards O & M expenses are on account of:

(a) Repairs and maintenance;

(b) Administrative expenses; and

(c) Employees cost

42. The petitioner has furnished reasons wherever O & M expenses during a year exceed the expenses for the previous years. During the hearing of the petition held on 25.10.2005, it was noticed that in case of repairs and maintenance works, there were fluctuations in expenditure during certain years. It was observed that the reasons

furnished by the petitioner regarding higher O & M expenses were either inadequate or unsatisfactory. The petitioner was directed to furnish additional details of O & M expenses claimed under the above categories for the year 1998-99 to 2002-03.

43. It was also observed that administrative expenses claimed by the petitioner during the years 2000-01 and 2002-03 are very high. The petitioner was asked to provide justification for the same.

44. It was also noted that during the year 1998-99, expenses on salaries, wages and allowances including welfare expenses and productivity linked incentive were about Rs. 1900 lakh. These expenses came down to Rs. 1400 lakh in the year 1999-2000 and again increased to Rs. 2600 lakh during the year 2001-02 and Rs. 3300 lakh during the year 2002-03, although the number of employees was decreased from 1080 in the year 1998-99 to 844 in 2002-03. The petitioner was directed to explain the reasons.

45. The petitioner, subsequently furnished the requisite details vide affidavit dated 10.4.2006 and further clarifications dated 25.4.2006.

46. The expenditure incurred by the petitioner under the head “Repairs and maintenance” during the years 1998-99 to 2002-03 is indicated below:

(Rs. lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
Repairs and maintenance	97.21	99.45	189.70	451.31	268.66

47. The expenses on R&M are high during the years 2001-02 and 2002-03. The petitioner has clarified that by virtue of their very nature, these expenses are liable to be erratic as some routine R & M works are of regular nature whereas certain other expenses are based on planning of repair and maintenance works which vary from year to year.

48. The nature of repair and maintenance (R&M) expenses covered are- R&M of plant & machinery, R&M of office buildings, staff colonies, PH building, vehicles like buses, trucks, cars, R&M of roads & bridges, electrical installations, water supply, furniture & fixture, computer, barrage etc. The quantum of these variations shall further depend upon the number of generating units taken on major capital maintenance, quantity and type of spares consumed for replacement of damaged components during the year, special repairs of civil structures, if any, like spillway, silt excluder gallery, intake area, hydro mechanical equipments i.e. radial & penstock gates etc. of the power plant to be undertaken during the year as per site requirement; frequency of specified repair and maintenance cycles of each components; besides other repair & maintenance works such as white washing, painting of residential and non-residential buildings and other civil works to be taken as per pre-determined cycles (whose expenses may not be incurred every year).

49. Apart from the above, sometime replacement of any major component like lower ring, top cover, turbine shaft, bearing pads etc. may shoot up the quantum of expenditure incurred in a particular year. Therefore, such increase/decrease in R & M expenses is very common and normal feature as per yearly requirements and cannot be considered abnormal.

50. The details of repair and maintenance expenses given by the petitioner under various categories during 2001-02 and 2002-03 are as under:

(Rs. in lakh)

Year	2001-02	2002-03
Building, including colony	77.80	32.17
Generating plant machinery, electric installations, DG sets, etc	156.77	141.91
Road and bridges	13426	34.12
Dam/power channel/penstock	33.54	14.34
Staff car and vehicles	11.98	10.67
Other expenses*	36.95	35.44
Total	451.31	268.66

* including R &M of hospital, guest house, school, computers, furnitures and fixtures etc.

51. The details given by the petitioner is found to be satisfactory hence the above expenditure on repair and maintenance works has been allowed for calculations of O & M for the period 2004-09.

Capitalization of Spares

52. The petitioner has claimed an amount of Rs. 108.42 lakh and Rs. 2.50 lakh on account of capitalization of spares during the year 2002-03 and 2003-04 in petition No. 93/2005, as per the accounting policy of the corporation and as per AS-2 of ICAI. The Commission vide order dated 2.3.2006 in Petition No.93/2005 has decided that additional capital expenditure claimed on account of capitalization of spares for the year 2002-03 and 2003-04 would not be allowed. However, actual amount of spares consumed for the purpose of repairs and maintenance for the years 2002-03 and 2003-04 shall be considered under the O & M expenses of the project. As directed by the Commission, the petitioner vide affidavit dated 25.4.2006 has submitted a list of spares amounting to Rs. 29.81 lakh which were actually consumed during the year 2002-03. Thus, spares of Rs. 29.81 lakh actually consumed in the year 2002-03 have only been considered towards O&M expenses in this petition against spares of Rs. 30.77 lakh capitalized.

Insurance coverage

53. Expenditure on account of insurance coverage submitted by the petitioner is as follows:

(Rs. lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
Insurance	72.56	78.75	76.98	85.42	79.35

54. The petitioner vide affidavit dated 10.4.2006 has submitted that as per the policy, it was to establish a self insurance reserve/fund in respect of O.M. projects by transferring on year to year basis an amount equal to 0.5% of the gross block of assets. This reserve/fund is to be utilized for losses of assets due to fire, storm,

cyclones, earthquake, landslides, terrorist activities (added in May, 2002), floods (added in September, 2005), but not for the routine wear and tear, repair and maintenance etc, accidents or breakdown of machinery or shortage of inventory or insurance of human life. According to the petitioner, it was also decided that losses of nature mentioned above shall be assessed by a Committee to be constituted for the purpose by its CMD and actual losses based on accepted recommendations of the Committee shall be reimbursed from the fund.

55. The reasons for insurance coverage and nature assets covered as submitted by the petitioner are satisfactory. Further, the annual expenditure incurred on insurance coverage which is around Rs.80 lakh, is of the order of 0.5% of the capital cost of the generating station admitted by the Commission as on 1.4.2004. Hence expenses towards insurance coverage have been allowed.

Security

56. Expenditure on account of security claimed by the petitioner is as follows:

(Rs. lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
Security	17.06	25.68	16.88	18.47	18.44

57. The petitioner has submitted that security of vital installations and project area has been provided by the state government through CRPF, Army etc. However, no deployment of CISF has been made at Loktak HE project for watch and ward of power plant assets, as has been done in other O&M projects of NHPC. Due to these reasons, deployment of watch and ward staff has been made to safeguard the power plant assets situated at various locations.

58. On consideration of the above facts and the prevalent conditions, the security expenses as claimed have been allowed for the purpose of tariff.

Administrative expenses

59. The details of administrative expenses incurred are as follows:

(Rs. in lakh)

Administrative Expenses	1998-99	1999-00	2000-01	2001-02	2002-03
Rent	0.11	0.34	0.54	1.27	1.79
Electricity Charges	10.58	1.48	4.94	0.97	16.72
Traveling and conveyance	20.46	15.08	29.83	48.81	45.61
Telephone, telex and postage	4.71	3.65	13.70	13.64	14.29
Advertising	3.04	0.03	0.91	1.87	1.01
Other Misc. expenses	36.75	48.64	173.89	52.71	78.21
Total (Administrative Expenses)	75.65	69.22	223.84	119.80	157.95

60. There is no significant variation in the expenses like rent, electricity charges, telephone, telex & postage, advertising and entertainment etc. Reason for higher expenses towards traveling & conveyance has been submitted by the petitioner as due to increase in tour and traveling expenses. The “Other Miscellaneous expenses” include - printing & stationary, books & journals, legal expenses, conferences & seminars, departmental meetings, legal expenses, operating expenses of PH, provision for doubtful advances/claims, loss on material /assets written off etc. The other expenses of Rs. 173.89 lakh incurred in the year 2000-01 were very high compared to other four years. Petitioner has furnished following clarification for the same:

(a) It includes operating expenses of PH of Rs. 36. 45 lakh .

(b) It includes an adjustment of Rs. 30 lakh on account of additional capitalization of assets not allowed by order dated 1.11.2002 in Petition No. 59/2001, for the period 2001-04. These expenses have now been claimed by the petitioner under O&M expenses, as per the Commission’s order.

(c) It includes a provision of Rs. 71.20 lakh made for doubtful advances/ claims, which has not been allowed.

61. Therefore, the following expenses have not been considered for normalization:

(Rs. lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
i) Material / Assets written off	27.46	26.40	1.53	31.08	5.61
ii) Provision for doubtful advances/ claims	-	-	71.20	-	-
Total	27.46	26.40	72.73	31.08	5.61

62. Thus, the following administrative expenses during the period 1998-99 to 2002-03 have been considered for calculation of O & M cost:

(Rs. in lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
a)Total Administrative Expenses claimed	75.65	69.22	223.84	119.80	157.95
b) Not considered	27.46	26.40	72.73	31.08	5.61
Total Administrative Expenses allowed (a-b)	48.19	42.82	151.11	88.72	152.34

Employees cost

63. The expenses on account of employees cost forms major part of total O&M expenses, the average employee cost is about 83% of the total average O&M cost during 1998-99 to 2002-03.The comparative figures of other generating stations of the petitioner have been tabulated below :

Sl. No	Project	Average Employee Cost (Rs. Crore)	Average Total O&M Cost (Rs. Crore)	% age of Avg. Employee cost to Total avg. O&M cost during 1998-99 to 2002-03
1.	Loktak	23.22	27.82	83%
2.	Baira siul	17.82	26.64	67%
3.	Tanakpur	11.32	19.68	58%
4.	Chamera-I	28.25	56.19	50%
5.	Uri	10.67	44.27	24%
6.	Salal	42.77	64.74	66%

64. Table below gives the ratio of employees/ MW of installed capacity in case of petitioner's generating stations. In case of Loktak HEP the ratio is quite high compared to other projects of the petitioner having similar configuration:

S.No.	Project	Capacity (MW)	Number of employees as on 2002-03	Employee per MW
1.	Loktak	90	844	9.4
2	Tanakpur	94.2	479	5
3.	Bairasiul	198	679	3.4
4.	Chamera-I	540	750	1.4
5.	Salal	690	1153	1.7
6.	Uri	480	342	0.7

65. Employees cost comprises **:**

(a) Salaries, wages & allowances which, apart from Salaries and wages, would include honorarium, leave encashment, provident fund contribution, compensation under statutory provision, gratuity and provision on account of gratuity made on actuarial valuation basis every year, VRS and also arrears of wage revision of employees.

(b) Staff welfare expenses- include LTC, medical reimbursement, liveries & uniform, ex-gratia, grants & subsidies to sports & canteen, new year gifts, project school & hospital expenses, transport expenses etc.

(c) productivity linked incentive- These are paid as per policy of the petitioner company.

66. Year wise Break up of Employees cost is as below:

(Rs. in lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
Salaries, wages and allowances	1453.98	1170.00	2333.12	2167.04	2788.71
Staff welfare expenses	464.49	256.28	192.65	232.21	418.58
Productivity linked incentive	0	0	42.63	45.67	45.31
Total	**1918.47**	**1426.28**	**2568.40**	**2444.92**	**3252.50**

67. The employee cost has increased by 80% in the year 2000-01 compared to year 1999-00, which has further increased to 33% in the year 2002-03 compared to the year 2001-02. As explained by the petitioner, employee cost was low in the year 1999-00 compared to 1998-99 due to reduction in staff strength from 1080 to 982 . Employee cost has gone higher in the year 2000-01 due to increase in pay & allowances on account of wage revision and VRS payments.

68. On prudence check, the following expenses have been excluded from consideration towards O & M expenses:

(Rs. lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03
Ex-gratia	-	10.08	2.35	8.89	63.08
VRS	3.56	2.88	24.22	66.84	20.34
Productivity linked incentive	-	-	42.63	45.67	45.31
Total	**3.56**	**12.96**	**69.20**	**121.40**	**128.73**

69. The reasons for not considering the above expenses for normalization are that:

(a) Ex-gratia is an incentive and should be paid out of profit of the company.

(b) VRS expenses cannot be allowed as they are not of regular nature, particularly when the petitioner has not indicated the likely pattern of expenses on this account during the period 2004-09.

(c) The expenses on account of Productivity linked Incentive (under section 31A of payment of Bonus Act), included under the category staff welfare expenses, are not allowed for tariff purpose. The reason being that expenses incurred under the head Productivity linked incentive are on account of incentive paid to the employees for maintaining high plant availability to achieve higher generation from the station, for which incentive payment is made separately to the power station and claimed in the bill of the beneficiaries.

70. The petitioner while justifying the reasons for higher employees cost of the generating station has submitted following clarification vide affidavit dated 10.4.2006

> "Loktak HE Project situated in Manipur State, is under the grip of insurgency and militancy since long. The security of vital installations and project area is provided by the State government through Central Security forces, i.,e, CRPF, Army etc. However, no deployment of CISF has been made at Loktak Project for watch and ward of power plant assets, as has been done in other O&M Projects of NHPC. Due to these reasons, deployment of extra watch and ward staff has been made by NHPC to safeguard the power plant assets situated at various locations.
>
> The project headquarter of Loktak Power Station is located at Loktak and the power house is located Leimatak which are about 25 kms away from the project HQs in a direction totally opposite to that of the power house. Since the project is located in a far –off remote area of the country i.e North East where infrastructure facilities are almost negligible and most of the activities have to be carried out departmentally resulting in establishment of adequate facilities for medical, education, transport, fire fighting etc. To provide proper medical facilities to the project staff, hospital facility has been established at Loktak and Leimatak colonies and also a dispensary at Jeevan Nagar Colony at Loktak and a school at Leimatak. Accordingly, to provide suitable residential accommodation to the project staff, project colonies have been established at the locations of project headquarter, power house site, barrage site and Jeevan Nagar (for penstock location). It is also to highlight that Imphal, the capital of Manipur is located 35 Kms away from the project, where the major facilities for medical, education and airport etc are available. Therefore, regular transport facilities i.e. buses, ambulances etc have to provided to the staff for their to and for transport to Imphal to meet out their essential requirements. Besides above a liaison office has been established at Imphal to maintain regular liaison with the State authorities and coordinating other activities, supply of material for running of Power Plant etc. Maintaining all these facilities definitely requires deployment of adequate manpower.
>
> At Loktak Project the construction works was done departmentally since beginning and NHPC accordingly inherited a large workforce at the time of taking over of the project from Central Government. The staff strength during the projects construction stage was about 2800 Nos in the year 1983-84. After the commissioning of the Project, NHPC has made consistent efforts to reduce the overall staff strength matching to O&M requirements. As a result the staff strength over the years has reduced considerably and reached a level of 1080 Nos in the year 1997-98, 796 at the end of year 2004-05 and 744 as on 31.3.2006."

Corporate Office expenses

71. The petitioner has submitted that as per its policy the Corporate office expenses allocated to running stations are taken @ 1% of sale of energy for the year excluding taxes & duties and in case of projects under construction @ 5% of

project expenditure during the year. Year wise details of total Corporate Office expenses incurred, its apportionment to running stations, construction stations and other activities of the petitioner and proportionate corporate expenses charged to generating station are given hereunder :

(Rs. lakh)

Corporate office expenses	1998-99	1999-00	2000-01	2001-02	2002-03
Total expenses	4523	4401	6206	7276	8676
Running stations	1336	1217	1276	1310	1282
Const. stations	3020	2432	3781	5665	7261
Other activities	167	752	1148	301	133
Charged to Loktak	**19.31**	**25.20**	**27.39**	**28.32**	**58.02**

72. The petitioner's balance sheets indicate that an amount of Rs. 1.59 lakh during the year 1999-00 and Rs. 0.31 lakh during 2000-01 were paid towards donation. Although it is for the benefit of society and for social cause, donation cannot be directly attributed to the business of power generation. Accordingly, donation expenses cannot be passed on to the beneficiaries. Therefore, donation amounts have not been considered in the corporate expenses for tariff purpose. Further, Ex-gratia has also not been considered because it is an incentive and should be borne out of profit of the petitioner company. After excluding proportionate expenses on account of Ex-gratia and donation paid by the company as mentioned above, following corporate expenses have been considered for Loktak generating station for the period 1998-99 to 2002-03:

(Rs. lakh)

Year	1998- 99	1999- 00	2000- 01	2001-02	2002-03
As claimed	19.31	25.20	27.40	28.32	58.02
Less Donations	-	1.59	0.31	-	-
Less Ex-gratia	0.25	0.29	0.28	0.23	0.54
Corporate expenses considered	19.06	23.32	26.81	28.09	57.48

O&M expenses considered during 1998-99 to 2002-03

73. Based on the above discussion and after prudence check, the following O&M expenses have been considered during the period 1998-99 to 2002-03 for calculation of O&M expenses for the tariff period 2004-09.

(Rs. in lakh)

Year	1998-99	1999-00	2000-01	2001-02	2002-03	Average base on 2001-01
Consumption of Stores & Spares	8.70	14.11	20.38	41.91	29.81	
Repairs & Maintenance	97.21	99.45	189.70	451.31	268.66	
Insurance	72.56	78.75	76.98	85.42	79.35	
Security	17.06	25.68	16.88	18.47	18.44	
Administrative expenses	48.19	42.82	151.11	88.72	152.34	
Employee Cost	1914.91	1413.32	2499.20	2323.52	3123.77	
Corporate expenses	19.06	23.32	26.81	28.09	57.48	
LESS: Recovered	3.06	2.77	5.97	8.81	13.15	
Less abnormal O&M Expenses (a) Overstaffing	152.55	-	-	-	-	
Total O&M expenses considered	**2022.10**	**1694.69**	**2975.07**	**3028.64**	**3716.81**	**2687.46**
Total O&M claimed	**2053.37**	**1735.93**	**3117.59**	**3181.35**	**3852.65**	**2788.18**

74. The petitioner has abnormally high manpower per MW ratio. Even after some reduction over the years, the man/MW ratio for the year 2002-03 works out to 8.04, based on original installed capacity of 105 MW and 9.4 based on derated capacity of 90 MW. As a consequence, the plant's O&M expenditure is also disproportionate. The petitioner has been so far allowed O&M expenses based on actual expenditure considering the special circumstances of the project. The petitioner has been impressed upon the need for further reduction of manpower, which the petitioner has agreed to. It is therefore, decided that the O&M expenses be allowed up to current year (2006-07) as per provision of 2004 regulations and for the remaining two years , that is, 2007-08 and 2008-09 , the O&M expenses be frozen at 2006-07 level.

75. Accordingly, on the basis of normalized O&M expenses for 2000-01 as Rs.2687.46 lakh and further escalation @ 4% per annum, the year-wise O&M expenses allowed for the generating station for the period 2004-09 works out as follows:

(Rs. in lakh)

Year	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses allowed	3143.95	3269.71	3400.50	3400.50	3400.50

INTEREST ON WORKING CAPITAL

76. In accordance with clause (v) of Regulation 38 of the 2004 regulations, Working capital in case of hydro generating stations shall cover:

(i) Operation and Maintenance expenses for one month;

(ii) Maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation; and

(iii) Receivables equivalent to two months of fixed charges for sale of electricity, calculated on normative capacity index.

77. Under the 2004 regulations, the rate of interest on working capital shall be on a normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2004 or on 1st April of the year in which the generating station or a unit thereof is declared under commercial operation, whichever is later. Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

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

(a) **Maintenance Spares:** The petitioner has claimed maintenance spares @ 1% pf capital cost for the year 1999-2000 as base and escalated the same

@ 6% per annum onwards, whereas in the first year of escalation it should have been on pro rata basis, as the date of commercial operation is 1.6.1983 Accordingly, maintenance spares have been worked out based on the historical cost of Rs. 11577 lakh on the date of commercial operation. Maintenance spares have been worked out as under:

(Rs. in lakh)

Year	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance spares	**371.29**	**393.57**	**417.18**	**442.21**	**468.75**

(b) **O&M Expenses:** O&M expenses for working capital have been worked out for 1 month of O&M expenses approved above are considered in working capital of the respective year:

(c) **Receivables**: The receivables have been worked out on the basis of two months of fixed and variable charges.

79. The average SBI PLR of 10.25% as on 1.4.2004 has been considered as the rate of interest on working capital during the tariff period 2004-05 to 2008-09.

80. The necessary details in support of calculation of interest on working capital are appended below:

Calculation of Interest on Working Capital

(Rs. in lakh)

	2004-2005	**2005-2006**	**2006-07**	**2007-2008**	**2008-09**
Spares	371.29	393.57	417.18	442.21	468.75
O & M expenses	262.00	272.48	283.38	283.38	283.38
Receivables	787.37	803.72	826.50	826.94	827.40
Total Working Capital	1,420.65	1,469.77	1,527.06	1,552.52	1,579.52
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	**145.62**	**150.65**	**156.52**	**159.13**	**161.90**

ANNUAL FIXED CHARGES

81. A summary sheet showing the capital cost and other related details is annexed to this order. The annual fixed charges for the period 1.4.2004 to 31.3.2009 allowed in this order are summed up as below:

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	506.96	506.96	506.96	506.96	506.96
Interest on Loan	32.65	0.00	0.00	0.00	0.00
Return on Equity	895.02	895.02	895.02	895.02	895.02
Advance Against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	145.62	150.65	156.52	159.13	161.90
O & M Expenses	3143.95	3269.71	3400.50	3400.50	3400.50
TOTAL	**4724.20**	**4822.34**	**4959.01**	**4961.62**	**4964.38**

PRIMARY ENERGY RATE

82. As per Regulation 39 of the 2004 regulations, rate of primary energy for all hydroelectric generating stations, except for pump storage generating stations, shall be equal to the average of the lowest variable charges of the central sector thermal power generating stations of the concerned region for all the month of the previous years. The primary energy charge is computed based on the primary energy rate and saleable scheduled primary energy.

83. It is further provided that in case the primary energy rate recoverable by applying the above primary energy rate exceed the Annual Fixed Charges of a generating station, the primary energy rate for such generating station shall be calculated by the following formula:

$$\text{Primary energy rate} = \frac{\text{Annual Fixed Charges}}{\text{Saleable Primary energy}}$$

84. The lowest variable charge of Central Sector Thermal stations of North Eastern Region for the year 2003-04, as intimated by Member Secretary NEREB vide letter

dated 26.5.2004 is 40.53 paise/kwh (provisional). Accordingly, this has been considered as the primary energy rate for North Eastern Region for the year 2004-05.

85. The primary energy rates for the remaining years of tariff period shall be determined on the basis considered above, by the petitioner in consultation with the beneficiary States. No petition for this purpose is required to be filed. However, in case the parties are unable to agree to primary energy rate, any one of them may approach the Commission for a decision by filing an appropriate petition.

Design Energy

86. The quantum of energy generated in excess of the design energy at the generating station on annual basis is the secondary energy. For the computation of monthly secondary energy and the secondary energy charge, month-wise details of design energy are indicated in the following table:

Month	Design Energy (MU)
April	30
May	31
June	30
July	52
August	52
September	50
October	52
November	30
December	31
January	31
February	28
March	31
Total	**448**

87. The rate of secondary energy shall be the same as the rate of primary energy.

De-rating of installed capacity of the station

88**.** The petitioner has filed an affidavit dated 12.4.2006 enclosing therein a letter dated 4.4.2006 from CEA. CEA has conveyed the approval for de-rating the capacity of the generating station from 105 MW to 90 MW. However, date from which de-rating of the generating station is to be effective has not been mentioned in the said letter of CEA.

89. The de-rating is for the following reasons:

(i) All the three units of the generating station which were commissioned in June, 1983 were re-commissioned in 1984 after completing the restoration works necessitated due to damage caused by a mishap in July 1983.

(ii) Since 1984, all the three units could not run on full load simultaneously due to head loss in the water conductor system, thus resulting in drop in efficiency of the turbines.

(iii) Central Water Power Research Station, (CWPRSP), Pune was entrusted the responsibility to conduct a study on the output to be available from the generating station. Their report suggested that in view of head loss in water conductor system and vibrations in penstock and in generating units , the maximum station output available was around 90 MW.

90. The proposal was examined in CEA and based on details furnished by the petitioner. CEA recommended the de-rating of station capacity from 105 MW to 90 MW, retaining the capacity of individual units at 35 MW.

91. CEA has further recommended that de-rating of the station capacity to 90 MW would be applicable up to March, 2008, by which time the petitioner would complete the on-going renovation & modernization works.

92. During the hearing held on 6.7.2006, representative of petitioner explained that the generating station was commissioned in June, 1983 and after just one month of its commissioning, heavy rainfall on 22nd, 23rd and 24th July, 1983 resulted in heavy seepage causing land slide in the HRT and it resulted in collapse of 33 M

length of HRT. A Technical Advisory Committee comprising of experts from CEA, CWC and GSI inspected the damages and suggested various remedial measures which included restoration of tunnel by constructing a bye-pass tunnel with an offset of 25 M from the existing tunnel alignment. The tunnel restoration work was done and the generating station was re-commissioned in July, 1984. Initially, the generating station was giving very low power output of about 40 to 50 MW because of transmission constraints in the NE region for evacuation of power. It was later on found that because of re-routing of HRT, there was additional head loss in the tunnel due to which available head got reduced from rated design head of 290 M to 282.66 MT. This head loss and discharge restriction to avoid turbulence has resulted into lowering of power output of the plant from 105 MW to 90 MW right from the initial years of commissioning of the station.

93. The representative of the petitioner further explained that in the tariff regulations, 2001 the calculation of capacity index was not linked with the installed capacity of the generating station. However, in the 2004 regulations, it has been stipulated that Maximum Available Capacity of the generating station declared for the day shall be equal to installed capacity minus auxiliary consumption and transformation losses, corrected for the reservoir level. This has necessitated the petitioner to approach CEA for certification of de-rating the capacity of the generating station from 105 MW to 90 MW although the generating station was delivering about 90 MW output from the year 1984 itself.

94. The representative of petitioner also explained that this matter was also discussed in the 47th Commercial Meeting of NEREB held on 6.7.2004 in which following decision was taken as recorded in the minutes of the meeting:

“ During the 46th Commercial Committee meeting of NEREB held on 4th June, at Aizwal, it was decided that Maximum Available Capacity (MAC) of Loktak generating station would be taken as 105 MW after due correction for water level, auxiliary consumption etc. Subsequently petitioner has taken up the matter with Commission for clarification of MAC and they had also written to CEA for temporary de-rating of the project. In light of the above facts, members decided to maintain status quo in respect of MAC of Loktak generating station (i.e. it would be taken as 89/90 MW as declared by Loktak, generating station).”

95. The representative of ASEB submitted that they are not aware about any such decision arrived at NEREB meeting as now informed by the petitioner. It is however, observed that this decision is two years old and if ASEB or any other beneficiary of the generating station was not in agreement with the decision taken in NEREB forum, it could have taken immediate action. ASEB representative further stated that CEA letter dated 4.4.2006 under reference mentions that de-rating of the station capacity to 90 MW would be applicable till March, 2008 by which time NHPC would complete renovation and modernization works.

96. The representative of TSECL submitted that because of de-rating of the generating station capacity the maximum available capacity would be declared by the petitioner at 90 MW instead of installed capacity of 105 MW which would enable the petitioner to claim higher incentive in spite of providing lower peaking power.

97. The petitioner vide its affidavit has submitted following information in respect of annual design energy and actual generation achieved from the generating station during the last five years period;

Year	Generation (MU)
2001-02	570.01
2002-03	551.93
2003-04	503.20
2004-05	629.67
2005-06	586.11

98. Annual design energy of the generating station is 448 MU. Thus the generating station has consistently achieved generation more than its design energy during the previous five years.

99. We also notice that the generating station was giving maximum out put of about 90 MW right from the year 1984 and this fact was in the knowledge of the beneficiaries also. It is not clear why no action was taken by any party for almost 20 years for restoration of the generating station's output capability to its rated level. None of the beneficiary appear to have raised the matter with any authority for any action. Further, when the issue was deliberated in NEREB meeting held on 6.7.2004, the Board, in which all beneficiaries are represented appears to have decided to maintain status quo in respect of Maximum Available Capacity of the generating station. In view of this de facto position and CEA's advice in the matter, we are inclined to accept the station's installed capacity as 90 MW for day-to-day operation and for payment of capacity charge. However this relaxation cannot be allowed to become a source of extra income for the petitioner. Therefore, the installed capacity shall remain 105 MW for the purpose of incentive calculation.

100. As regards the date from which the de-rating of the generating station plant to be considered, there are divergent views. The petitioner has pleaded that it was a natural calamity and within the full knowledge of beneficiaries that generating station was delivering about 90 MW from the beginning itself. In order to meet the requirement of the 2004 regulations the petitioner had approached CEA vide letter No. NH/ O&M/COM/10/2427 dated 25th June, 2004 for certification of de-rating of the capacity from 105 MW to 90 MW. CEA vide letter No. CEA/ PLG/DMLF/ 611/2006- 230-243 dated 4.4.2006 agreed with the proposal and de-rated the station capacity from 105 MW to 90 MW. Considering the ground realities (which changed

neither on 25.6.2004 nor on 4.4.2006), we allow the derating for the present purpose with effect from 1.4.2004, the beginning of the present tariff period.

101. To conclude, since the generating station has been substantially derated (by as much as 14%) and the petitioner is making extra money through secondary energy already, we hereby order that for the purpose of calculation of incentive, the installed capacity shall continue as 105 MW. However, payment of capacity charge shall be allowed considering the installed capacity as 90 MW, from 1.4.2004 to 31.3.2008. Such a dispensation would ensure that while the petitioner would still recover full AFC and get paid for secondary energy, the beneficiaries shall not have to pay any additional amount as incentive, which would be payable in case capacity index is based on the derated capacity**.** All out efforts shall be made by petitioner to complete renovation and modernization of the generating station so as to restore the installed capacity to 105 MW by 31.3.2008. No further extension on the relaxation shall be allowed beyond 31.3.2008**.**

Impact of additional capitalization for the years 2001-04

102. The Commission has decided that additional capital expenditure for the period 1.4.2001 to 31.3.2004 be added to the gross block as on 1.4.2001 to arrive at gross block as on 1.4.2004 for the purpose of fixation of tariff for the period 2004-05 to 2008-09. The Commission has further ordered that the petitioner would be entitled to earn return on equity @ 16% on equity portion of additional capitalization approved and interest on loan at the rate as applicable during 2001-02 to 2003-04. The return on equity and interest on loan are payable on additional capitalization from 1st April of the financial year following the financial year to which additional capital expenditure relates.

103. Based on the above impact of additional capitalization has been worked out as under, which the petitioner shall recover from the respondents along with tariff being approved through this order in five equal installments up to 31.3.2009:

CALCULATION OF IMPACT OF ADDITIONAL CAPITALISATION DURING THE YEAR 2001-04					
					(Rs. in Lakh)
		2001-02	**2002-03**	**2003-04**	**Total**
Period		**1.00**	**1.00**	**1.00**	
Additional Capitalisation		**131.42**	**432.58**	**256.05**	**820.05**
Financing of Additional Capitalisation					
Notional Loan		131.42	432.58	256.05	**820.05**
Notional Equity		0.00	0.00	0.00	**0.00**
Total		**131.42**	**432.58**	**256.05**	**820.05**
Effective Additional Capitalisation					
Opening Loan Balance		0.00	0.00	432.58	
Addition of Loan		131.42	432.58	256.05	**820.05**
Repayment of Loan		131.42	0.00	0.00	**131.42**
Closing Loan Balance		0.00	432.58	688.63	
Effective Loan			0.00	432.58	
Weighted Average Rate of Interest on Loan		14.5%	14.5000%	14.5000%	
Effective Equity			0.00	0.00	
Interest on Loan			0.00	62.72	**62.72**
Return on Equity	16%		0.00	0.00	**0.00**
Impact of Additional Capitalisation			0.00	62.72	**62.72**

104. The petitioner vide its affidavit dated 19.5.2006 has submitted that the expenditure amounting to Rs. 1,18,500/- has been incurred towards publication of notices in the newspapers and has sought approval of reimbursement of this expenditure. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in one installment in the ratio applicable for sharing of fixed charges, subject to the petitioner filing an affidavit before the Commission. The petitioner has also sought reimbursement of filing fee of Rs.25 lakh paid. A final view on reimbursement of filing fee is yet to be taken by the Commission for which views of the stakeholder have been called for. The view taken on consideration of the comments received shall apply in the present case as regards reimbursement of filing fee.

105. 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 2004 regulations, as applicable.

106. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's interim directions. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

107. This order disposes of Petition No.171/2004.

Sd/-	Sd/-	Sd/-
(A.H. JUNG)	**(BHANU BHUSHAN)**	**(ASHOK BASU)**
MEMBER	**MEMBER**	**CHAIRPERSON**

New Delhi dated the 4th October, 2006

Summary Sheet					
Name of the Company:		**NHPC**			
Name of the Project		**LOKTAK HEP**			
Actual DOCO:		**01.6.1983**			
Petition No.:		**171/2004**			
Tarrif setting Period:		**2004-09**			
					(Rs.in lacs)
1	**Admitted Capital Cost as on 01.04.2004 for Calculation of Debt and Equity**				**13620.00**
2	**Additional Capitalisation(works)**				**581.79**
	2001-02			131.42	
	2002-03			432.58	
	2003-04			256.05	
	Assets not in use as on 01.4.2004			-238.26	
	Total			581.79	
3	**Additional Capitalisation(FERV)**				**0.00**
	2001-02			0.00	
	2002-03			0.00	
	2003-04			0.00	
	Total			0.00	
4	**Total Capital Cost as on 1.4.2004(2+3+4)**				**14201.79**
5	**Means of Finance[1] :**				
	Debt		54.98%	7808.79	
	Equity		45.02%	6393.00	
	Total		100.00%	14201.79	
6	**Gross Loan as on 1.4.2004**				**7808.79**
7	**Cumulative Repayment upto 31.3.2009 :**				**7808.79**
	Repaid upto 31.3.2004			7227.00	
	1.4.2001 to 31.3.2004 (ACE & FERV)			131.42	
	1.4.2004 to 31.3.2009			450.37	
	Total			7808.79	
8	**Balance Loan to be repaid beyond 31.3.2009 :**				**0.00**
9	**Depreciation recovered upto 31.3.2009 :**				**8183.04**
		Dep	**AAD**	**Total**	
	Recovered upto 31.3.2004	5768.00	0.00	5768.00	
	1.4.2001 to 31.3.2004 (ACE & FERV) / Assets not in use as on 1.4.2004 / Deletions	-119.77	0.00	-119.77	

		1.4.2004 to 31.3.2009	2534.82	0.00	2534.82	
		Total			8183.04	
10	**Balance Depreciation to be recovered beyond 31.3.2009 :**					**4562.67**
		Capital cost for the purpose of Depreciation			**13620.00**	
		ACE + FERV			**581.79**	
		Capital cost as 1.4.2004			**14201.79**	
		Less: Land Cost			**39.89**	
					14161.90	
		90% of Capital Cost as above			**12745.71**	
		Cum. Depreciation to be recovered upto 31.3.2009			**8183.04**	
		Balance Depreciation to be recovered beyond 31.3.2009			**4562.67**	