

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

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

**Petition No. 62/2001**

**In the matter of**

Approval of Generation Tariff of Tanakpur HE Project

**And in the matter of**

National Hydroelectric Power Corporation Ltd.	...	<b>Petitioner</b>
<b>Vs</b>		
1. Punjab State Electricity Board		
2. Haryana Vidyut Prasaran Nigam Ltd.		
3. Delhi Vidyut Board, Delhi		
4. Uttar Pradesh Power Corporation Ltd., Lucknow		
5. Uttaranchal Power Corporation, Dehradun		
6. Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Jaipur		
7. Himachal Pradesh State Electricity Board, Shimla		
8. Power Development Deptt., Jammu (J&K)		
9. Engineering Deptt., Chandigarh	...	<b>Respondents</b>

The following were present:

1. Shri B. Dutta, Sr. Advocate for NHPC
2. Shri Sachin Datta, Advocate, NHPC
3. Shri S.K. Agarwal, CE (T), NHPC
4. Shri D.S. Ahluwalia, Sr. Manager (F&A), NHPC
5. Shri H.D. Khunteta, GM (F&A), NHPC
6. Shri N.K. Shekhawat, AO, NHPC
7. Shri Rupesh Sood, DM(F&A), NHPC
8. Shri Ansuman Ray, TE (Comml.), NHPC
9. Shri S.K. Gupta, Engineer, NHPC
10. Shri S.K. Meena, TE (Electrical), NHPC
11. Er. P. Kumar, NHPC
12. Shri R.K. Arora, XEN (T), HVPNL
13. Shri V.K. Gupta, SE, RRVPNL

**ORDER**  
**(DATE OF HEARING 2.1.2002)**

This petition has been filed by National Hydroelectric Power Corporation Ltd. for approval of tariff for Tanakpur Hydro Electric Project (Tanakpur HEP) (3x31.4 MW) for the period from 1.4.2001 to 31.3.2004 based on terms and conditions of tariff notified by the Commission on 26.3.2001.

2. The revised investment approval for Tanakpur HEP was accorded by Ministry of Power vide its letter dated 25.3.1998, according to which the generation portion of the project was completed at Rs.379.16 crores, including IDC of Rs.110.20 crores.

3. All the three units of Tanakpur HEP were commissioned during April 1993.

4. Tariff for Tanakpur HEP, for the period from 1.4.1997 to 31.3.2002 was approved by Ministry of Power vide notification dated 8.2.1999. However, consequent to notification of terms and conditions of tariff by the Commission on 26.3.2001, applicable with effect from 1.4.2001, the petitioner filed this petition for approval of tariff in respect of Tanakpur HEP for the period from 1.4.2001 to 31.3.2004 based on the terms and conditions of tariff contained in the notification issued by the Commission.

5. The replies to the petition have been filed by Haryana Vidyut Prasaran Nigam Ltd. (respondent No.2), Uttar Pradesh Power Corporation Ltd. (respondent No.4) and Rajasthan Rajya Vidyut Prasaran Nigam Ltd (respondent No.6). We propose to deal

with the issues raised on behalf of the petitioner and respondents in the succeeding paragraphs while dealing with individual components of tariff.

### **Capital Cost**

6. In accordance with the terms and conditions of tariff notified by the Commission, the actual expenditure incurred on completion of the project is to form the basis for fixation of tariff. It is further provided that where the actual expenditure exceeds the approved project cost, the excess expenditure as allowed by CEA or an appropriate independent agency, is to be considered for the purpose of fixation of tariff. The terms and conditions notified by the Commission further provide that the capital expenditure of the project should be financed as per the approved financial package set out in the techno-economic clearance of CEA or as approved by an appropriate independent agency. A reasonable amount of capitalised initial spares are to be included in the project cost.

7. It has been pointed out by the respondents that expenditure in excess of the approved capital cost of Rs.379.16 crores which includes expenditure after the date of commercial operation should not be permitted for the purpose of tariff computation, particularly the expenditure of Rs.5.23 crores and Rs.5.62 crores, during 1999-2000 and 2000-01 should be disallowed. Ministry of Power had notified the tariff for the period 1.4.1997 to 31.3.2002 considering the gross block of Rs.375.40 crores, excluding the initial spares of Rs.2.02 crores as on 31.3.1996. The commission recognizes the gross block of Rs.375.40 crores to arrive at a gross block of 31.3.2001 for the purpose of

fixing tariff for the period covered by this petition. Considering this, the gross block as on 31.3.2001 works out as under:

Gross block as on 31.3.1996	=	Rs.375.40 crores
Addl. Capitalisation	=	Rs. 2.55 crores
Initial spares	=	Rs. 2.02 crores
Total as on 31.3.2001	=	Rs.379.97 crores

8. Against this, the petitioner has claimed tariff on the gross block of Rs.380.40 crores as on 31.3.2001. We, however, allow gross block of 379.97 crores for calculation of tariff from 1.4.2001 to 31.3.2004 as no justification is available for allowing gross block of Rs.380.40 crores.

### **ADDITIONAL CAPITALISATION**

9. In the tariff proposal submitted by the petitioner, it has taken into account the additional capitalisation since 1996-97. The details of amount claimed by the petitioner, allowed and disallowed by us, are given hereunder year-wise :

(Rs. in crores)

Financial Year	ACE Claimed	ACE Allowed	ACE Disallowed
1996-97	(+)0.97	(+) 0.97	0.00
1997-98	(-)8.11	(-)8.11	0.00
1998-99	(-)0.87	(-)0.87	0.00
1999-00	(+)5.23	(+)4.99	0.24
2000-01	(+)5.62	(+)5.57	0.05
<b>TOTAL</b>	<b>2.84</b>	<b>2.55</b>	<b>0.29</b>

10. The objections raised on behalf of the respondents against additional capitalisation after the date of commercial operation have been considered while

allowing additional capitalisation. We have been guided by the following factors in the process of allowing/disallowing additional capitalisation:

- (a) The expenditure incurred for replacement of existing equipment, facility which has become obsolete or the equipment has outlived its utility, such expenditure has been allowed.
- (b) The expenditure even if incurred after the date of commercial operation, has been allowed, where the work was within the scope of approved cost.
- (c) Reduction in capitalisation on account of adjustment of depreciation during construction period in accordance with advice of C&AG and also reduction on account of disposal of old assets has been permitted.
- (d) Expenditure incurred on items of work to provide facilities to the employees at the remote location of the hydro power project for smooth and efficient operation of the project has been permitted.

Payments made in terms of arbitration awards and adjustment of final bills have been allowed.

11. The year-wise details of expenditure disallowed for the purpose of additional capitalisation are given hereinbelow :

(Rs. in crores)

1999-2000	(i)	Minor Additions (Generating Plant & Machinery)	0.01
	(ii)	Minor additions (Minor assets)	0.23
2000-2001	(i)	Minor Additions (Furniture & Fixtures)	0.03
	(ii)	Minor additions (Minor assets)	0.02
<b>TOTAL</b>			<b>0.29</b>

12. Financing of additional capital expenditure has been considered from Govt. of India loan raised during the year 1996-97 by the petitioner, and balance of amount has been considered from equity.

13. It has been stated on behalf of the respondents that the petitioner has employed debt-equity ratio more than the approved ratio of 3.6:1. It has, therefore, been prayed that the ROE on excess equity may not be allowed. In accordance with the terms and conditions of the tariff notified by the Commission on 26.3.2001, the capital expenditure of the project should be financed as per the approved financial package set out in the techno-economic clearance of the CEA or as approved by an appropriate independent agency. Ministry of Power already notified the tariff for the period from 1.4.1997 to 31.3.2002 and the present tariff petition before the Commission is for the period from 1.4.2001 to 31.3.2004. The respondents in this case are already paying tariff for the energy drawn from this project based on the Ministry of Power tariff notification. The Commission has, therefore, recognised the gross block as on 31.3.1996 as approved by the Ministry of Power and added additional capitalization between the period 1.4.1996 to 31.3.2001 to arrive at gross block as on 31.3.2001. The debt and equity follows from the above gross block and the additional capitalisation allowed by the Commission for which the debt and equity have also been decided by the Commission in this petition. Accordingly, the interest on loan and the return on equity shall be computed on the amount of debt and equity so arrived.

### **Repayment of Loan and Interest on Loan**

14. As provided in the Commission's Notification dated 26.3.2001, interest on loan capital is to be computed on the outstanding loan 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. The interest on loan has been computed based on actual repayment schedule and actual interest rate indicated by the petitioner in the petition. The interest on additional capitalisation has also been worked out for Govt. of India loan. The year-wise interest on loan payable for various years is as under:-

(Rs. in crores)

2001-2002	2.03
2002-2003	1.43
2003-2004	0.91

### **Depreciation**

15. As per the terms and conditions of tariff notified by the Commission, the rate base for the purpose of depreciation is to be historical cost of the assets. The depreciation has to be calculated as per the straight line method. Further, the total depreciation to be recovered in the tariff during the life of the project shall not exceed 90% of the approved original cost, which shall include additional capitalisation. As per the petition, an amount of Rs.33.20 crores had been recovered till 1996-97 on account of depreciation. For the purpose of present tariff period, that is, 1.4.2001 to 31.3.2004, depreciation has been worked out on the gross block of Rs.377.95 crores, which is based on the gross block of Rs.379.97 crores approved by the Commission in para 8 of

this order, excluding the initial spares of Rs.2.02 crores. The weighted average depreciation rate has been calculated using the asset-wise break up of the gross block as on 31.3.2001 as furnished in the petition. This rate works out to 2.22%. Based on the application of the above weighted average depreciation rate on the gross block of Rs.377.95 crores, the depreciation payable for different years has been worked out and is indicated below:

(Rs. in crores)	
2001-2002	8.39
2002-2003	8.39
2003-2004	8.39

### **Advance Against Depreciation**

16. The Commission in the norms of tariff notified on 26.3.2001 has made a provision for advance against depreciation, in addition to allowable depreciation. Advance against depreciation is permitted wherever original scheduled loan repayment exceeds the depreciation allowable. The amount of advance against depreciation is to be worked out by applying the ceiling of 1/12<sup>th</sup> of the original loan amount less depreciation allowed. For working out advance against depreciation for the present tariff period, 1/12<sup>th</sup> of the loan amount of Rs.288.65 crores, which include a sum of Rs.279.41 crores of original loan considered by MOP for the purpose of tariff and an amount of Rs.9.24 crores to finance additional capital expenditure, has been considered. Advance against depreciation for different years of the tariff period is as under:

(Rs. in Crores)

2001-2002	0.55
2002-2003	Nil
2003-2004	Nil

### **Return on Equity**

17. As per the notification issued by the Commission on terms and conditions of tariff, return on equity is to be computed on the paid up and subscribed capital at the rate of 16%. The petitioner has claimed return on equity on the equity amount of Rs.93.19 crores for each year during the present tariff period. However, in view of the fact that we have considered gross block of Rs.379.97 crores as on 31.3.2001 and equity of Rs.91.32 crores has been taken, Return on Equity has been allowed on this amount. On these considerations, year-wise ROE works out as under :

(Rs. in crores)	
2001-2002	14.61
2002-2003	14.61
2003-2004	14.61

### **O&M Expenses**

18. The Commission has prescribed the procedure for arriving at base O&M expenses for the year 1999-2000 in the notification issued on 26.3.2001. The average of actual O&M expenses including insurance but excluding abnormal O&M expenses for years 1995-1996 to 1999-2000 gives the O&M expenses for the year 1997-98. This average of O&M expenses for the year 1997-98 is escalated twice at the rate of 10% per annum to arrive at the base expenses for the year 1999-2000. The base O&M expenses of 1999-2000 are further escalated at the rate of 6% per annum to arrive at permissible O&M expenses for the relevant year. Where increase in the O&M expenses in a year is more than 20% over the O&M expenses of previous years, such expenses are to be explained. The O&M expenses wherever was more than 20% over

the previous year, was supported by explanation by the petitioner in the form of an affidavit filed on 13.3.2002. Year-wise O&M expenses as furnished by the petitioner and percentage increase are as under :

<b>Year</b>	<b>O&amp;M expenses (Rs. in crores)</b>	<b>% increase</b>
1995-96	8.1	-
1996-97	8.9	10%
1997-98	16.5	85%
1998-99	19.4	17.55
1999-00	14.6	-(ve)

19. There is an increase of 85% in the O&M expenses during 1997-98 over the previous year. The petitioner has submitted an affidavit to explain the expenses for 1996-97 and 1997-98. It has been stated that CISF personnel are deployed at Tanakpur HEP for security purposes. With the implementation of recommendations of Fifth Pay Commission with effect from 1.1.1996, the entitlement of pay and allowances of CISF personnel has increased. It is further explained that some of the NHPC employees at Tanakpur HEP are governed by Central DA pattern. As a result of implementation of Fifth Pay Commission, their pay and allowances have also increased. It is further explained that during 1997-98 there was pay revision of other NHPC employees at Tanakpur HEP governed by Industrial DA pattern, which has resulted in an increase of Rs.2.0 crores on account of pay and allowances, etc. It has also been seen that insurance expenditure has increased from Rs.0.01 crores during 1996-97 to Rs.1.9 crores during 1997-98. According to the petitioner, increase in insurance expenses during 1997-98 and onwards is on account of corporate policy of providing insurance coverage to all fixed assets of the project viz. generating plant machinery,

Civil and hydro-mechanical works etc.. The total increase of O&M expenses during 1997-98 on account of insurance and employee cost is Rs.3.8 crores.

20. We have considered the explanation furnished by the petitioner to justify O&M expenses during 1996-97 and 1997-98. The increases in O&M expenses during these years is on account of mandatory and obligatory expenses over which the petitioner has no control. We, therefore, allow actual expenses for the years 1995-1996 to 1999-2000 to be considered for the purpose of calculation of O&M base for the base year of 1999-2000, except that expenses on account of Incentive under the category Staff Welfare Expenses, as per the following details :

(in Rupees)

1995-1996	32,35,847
1996-1997	13,44,121
1997-1998	23,33,992
1998-1999	24,45,546
1999-2000	23,35,500

21. Accordingly, O&M expenses for different years of the tariff period allowed by us are summarised hereinbelow :

(Rs. in crores)

2001-2002	17.16
2002-2003	18.19
2003-2004	19.28

### **Interest on Working Capital**

22. As per the Commission's notification 26.3.2001, interest on working capital covers the following :

- (a) Operation and Maintenance expenses for one month;
- (b) Maintenance spares at actuals but not exceeding one year's requirements less value of one fifth of initial spares already capitalized for the first five years;
- (c) Receivables equivalent to two months of average billing for sale of electricity.

23. The interest rate for this purpose shall be the cash-credit rates prevailing at the time of tariff filing.

24. The actual details of maintenance spares would be available on completion of the tariff period. In view of this, average of 5 years spares consumed, (including repairs and maintenance of machinery) as furnished by the petitioner has been considered for the purpose of calculating working capital. This is, however, subject to adjustment between the parties, once the actual spares consumed during different years of the tariff period are known. The Commission could be approached in the event of any disputes. The annual average prime lending rate of State Bank of India of 11.5% as applicable at the beginning of the tariff period, that is, 1.4.2001, has been taken for the purpose of calculating interest on working capital. The interest on working capital to be recovered from the respondents is as per the following details :

(Rs. in crores)

2001-2002	1.45
2002-2003	1.46
2003-2004	1.48

25. The revised fixed charges payable by the respondents to the petitioner year-wise are as under :

(Rs. in crores)

	<b>Particulars</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>
1	Interest on Loan	2.03	1.43	0.91
2	Interest on Working Capital	1.45	1.46	1.48
3	Depreciation	8.39	8.39	8.39
4	Advance Against Depreciation	0.55	0.00	0.00
5	Return on Equity	14.61	14.61	14.61
6	O&M Expenses	17.16	18.19	19.28
	<b>Total</b>	<b>44.19</b>	<b>44.08</b>	<b>44.67</b>

26. In accordance with the Commission's Notification dated 26.3.2001, the annual fixed charges are to be divided into capacity charge and primary energy charge. The annual fixed charges are indicated in para 25 of this order. The primary energy charge is to be computed in accordance with clause 3.5.3 of the Commission's notification. The capacity charge shall then be computed as indicated below:

$$\text{Capacity Charge} = (\text{Annual fixed charge} - \text{primary energy charge})$$

### **Primary Energy Charges**

27. As per the notification dated 26.3.2001, the Primary Energy Charges are to be worked out on the basis of paise per kWh rate ex-bus energy scheduled to be sent out from the Generating Station after adjusting for the free power delivered to the home state.

28. Rate of Primary Energy is to be taken as 90% of the lowest variable charges of the central sector thermal power station of the Northern region. The primary energy charges are computed based on the primary energy rate and saleable energy of the project. This rate is also the rate to be used in merit order despatch of the plants.

29. The lowest variable charge of Central Sector Thermal Stations of northern Region was found to be varying on a month to month basis. The petitioner has calculated the primary energy rate of the hydro stations for the first year of tariff period namely 2001-02 as 90% of average of preceding 12 months (i.e. the year 2000-01) lowest variable charge of Central Sector Thermal Power Stations of Northern Region. We agree with the methodology adopted by the petitioner for calculation of the rate of primary energy which is reproduced below. The lowest variable charge for the year 2000-01 has been worked out to 60.66 paise per kWh. The primary energy rate applicable during 2001-02 for the energy supplied from Tanakpur HE Project shall be 54.59 paise per kWh (90% of 60.66 paise per kWh). The details in support of primary energy rate arrived at are given in the Table below :

**TABLE**

<b>TANAKPUR H.E. PROJECT</b>													
<b>VARIABLE CHARGES OF THE CENTRAL SECTOR THERMAL POWER STATIONS OF NORTHERN REGION FOR THE YEAR 2000-01 (Paise/Kwh)</b>													
<b>STATION</b>	<b>APR.</b>	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG.</b>	<b>SEPT.</b>	<b>OCT.</b>	<b>NOV</b>	<b>DEC</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR.</b>	<b>Avg. Rate for the Year</b>
SINGRAULI	<b>63.44</b>	<b>59.31</b>	61.14	<b>62.26</b>	61.01	<b>60.09</b>	61.06	61.76	60.92	63.60	69.74	68.79	62.76
RIHAND	65.49	60.15	<b>60.50</b>	62.27	<b>59.39</b>	63.87	<b>59.03</b>	<b>58.67</b>	<b>59.90</b>	<b>58.08</b>	<b>61.54</b>	<b>65.67</b>	61.21
FGUPTS	94.56	94.84	92.86	94.82	100.24	100.75	97.22	91.54	96.60	96.52	99.58	105.71	97.10
NCTPS	143.66	147.76	140.56	134.90	134.26	134.93	133.23	133.50	128.58	142.64	147.37	152.99	139.53
ANTA GPS	93.42	93.87	93.85	93.30	93.30	93.30	92.87	92.87	92.87	93.40	93.40	93.54	93.33
AURAIYA GPS	96.51	96.86	97.10	96.15	96.15	96.12	95.62	95.63	95.61	96.26	96.28	96.27	96.21
DADRI GAS	95.48	95.94	95.71	95.01	95.01	95.01	94.48	94.48	94.48	94.14	95.14	95.14	95.00
FGUPTS-II	217.94	216.36	213.99	215.96	219.73	221.67	218.6	212.92	218.08	219.98	220.63	222.77	218.22
Average Lowest Rate for the year (P/Kwh)= (63.44 + 59.31+ 60.50 + 62.26 + 59.39 + 60.09 + 59.03 + 58.67 + 59.90 + 58.08 + 61.54+ 65.67 ) = 727.88 / 12 = 60.66 P/Kwh													
90% of Average lowest rate for the year 2000-01 = 54.59 p/kwh													

30. The primary energy rate of 54.59 paise per kWh which pertains to the year 2001-02 shall remain constant throughout the tariff period for the purpose of payment of incentive/disincentive relating to the capacity index.

**Secondary Energy**

31. Secondary energy relates to the quantum of energy generated in excess of the design energy on an annual basis in the station. For the computation of monthly secondary energy and secondary energy charge, month wise details of design energy are indicated in the table given below:

**MONTHWISE DESIGN ENERGY**

Month	Design Energy (GwH)
April	19.71
May	24.94
June	42.29
July	66.59
August	66.59
September	64.44
October	51.92
November	31.12
December	24.13
January	21.25
February	17.12
March	18.09
<b>Total</b>	<b>452.19</b>

32. The rate of secondary energy shall be the same as rate of primary energy in the respective years.

33. The primary energy rates for the years 2002-03 and 2003-04 shall be determined based on 90% of average of the 12 months' lowest variable charges of Central Sector Thermal Stations of Northern Region for the years 2001-02 and 2002-03 respectively by the petitioner in consultation with the respondents. No petition for this purpose is required to be filed. However, in case the parties are unable to agree to primary energy rates for these years, any one of them may approach the Commission for a decision by filing an appropriate petition.

### **Filing Fee**

34. The petitioner has remitted a sum of Rs.10 lakhs on account filing fee for the present tariff petition. The petitioner has prayed that the filing fee be made a "pass through" in the tariff. HVPNL has submitted that the filing fee should not be made a "pass through" in tariff but should be borne by the petitioner itself. On the contrary, UPPCL has submitted that filing fee should be charged on O&M expenses. We have considered the submissions made on behalf of the parties. We are satisfied that the filing fee is an obligatory statutory expense on the petitioner and is to be made "pass through" in the tariff, like other taxes, duties, cess and levies. We have also considered the implications of allowing filing fee in O&M expenses. We feel that filing fee should be allowed to be reimbursed as a separate item and not made a part of O&M expenses since by including the filing fee in O&M expenses, it will put additional burden on the consumers for a longer term. We, therefore, direct that filing fee of the main tariff petition only shall be recovered by the petitioner in 10 monthly instalments in the tariff. We make it clear that all other charges like advocate's fee or filing fee for interlocutory

applications shall not be allowed as “pass through” and these expenses shall be borne by the petitioner itself.

35. In addition to the above charges, the petitioner shall be entitled to incentive/disincentive, tax on income etc. as prescribed in the Commission's notification dated 26.3.2001.

36. The matters not specifically covered in this order, but for which provisions are made in the Commission's notification dated 26.3.2001, shall be governed by that notification. This is, however, subject to the directions of the superior courts on these matters.

37. The tariff approved by us shall be borne by the respondents in proportion of energy supplied from Tanakpur HEP until Availability Based Tariff (ABT) is introduced in the region and as per the Commission's notification dated 26.3.2001 after the ABT is introduced in the Northern region.

38. This order disposes of petition No.62/2001.

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

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

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

New Delhi dated the 27<sup>th</sup> July, 2002