## CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI

### Coram:

- 1. Shri Bhanu Bhushan, Member
- 2. Shri R.Krishnamoorthy, Member

Petition No.22/2007

#### In the matter of

Approval of revised fixed charges on account of additional capital expenditure for the period 1.4.2004 to 31.3.2009 in respect of Rihand STPS Stage-I (1000 MW).

### And in the matter of

NTPC Ltd, New Delhi

---- Petitioner

Vs

- 1. Uttar Pradesh Power Corporation Limited, Lucknow
- 2. Jaipur Vidyut Vitran Nigam Ltd., Jaipur
- 3. Ajmer Vidyut Vitran Nigam Ltd., Ajmer
- 4. Jodhpur Vidyut Vitran Nigam Ltd., Jodhpur
- 5. Delhi Transco Ltd., New Delhi
- 6. Haryana Power Generation Corporation Ltd., Panchkula
- 7. Punjab State Electricity Board, Patiala
- 8. Himachal Pradesh State Electricity Board, Shimla
- 9. Power Development Department, Govt.of J&K, Srinagar
- 10. Power Department, Union Territory of Chandigarh
- 11. Uttaranchal Power Corporation Ltd., Dehradun ------Respondents

### The following were present:

- 1. Shri S.N.Goel, NTPC
- 2. Shri A.S.Pandey, NTPC
- 3. Shri A.K.Juneja, NTPC
- 4. Shri S.K.Johar, NTPC
- 5. Ms. Pranav Kapoor, NTPC
- 6. Shri S.K.Agarwal, NTPC
- 7. Shri S.S.Reddey, NTPC
- 8. Shri Vivake Kumar, NTPC
- 9. Shri D.Kar, NTPC
- 10. Shri Ajay Dua, NTPC
- 11. Shri N.N.Sadasivan, NTPC
- 12. Shri D.G.Salpekar, NTPC
- 13. Shri S.D.Jha, NTPC

- 14. Shri S.Saran, NTPC
- 15. Shri T.P.S.Bawa, OSD, PSEB
- 16. Shri R.K.Arora, HPGCL

### ORDER (DATE OF HEARING: 23.10.2007)

The petitioner has made this application for approval of the revised fixed charges for the period 2004-09, after considering the impact of additional capital expenditure incurred during 2004-05 and 2005-06, in respect of Rihand Super Thermal Power Station Stage-I (1000 MW), (hereinafter referred to as "the generating station") 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 on 1.1.1991. The tariff for the generating station for the period 1.4.2004 to 31.3.2009, was approved by the Commission by its order dated 19.6.2006 in Petition No.151/2004, and subsequently revised by order dated 21.7.2006. While determining the tariff, the Commission had considered the capital cost of Rs.237257 lakh as on 1.4.2004. The annual fixed charges approved by the Commission are as under:

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on Loan	0	0	0	0	0
Interest on Working Capital	2409	2441	2475	2514	2548
Depreciation	4056	4056	4056	4056	4056
Advance Against Depreciation	0	0	0	0	0
Return on Equity	16608	16608	16608	16608	16608
O & M Expenses	9360	9730	10120	10520	10950
TOTAL	32433	32835	33259	33698	34162

3. In the present petition, the petitioner has claimed the revised fixed charges based on the following additional capital expenditure incurred during 2004-05 and 2005-06:

(Rs. in lakh)

	2004-05	2005-06	Total
Additional capital expenditure claimed	1245	717	1962

4. Reply to the petition has been filed by UPPCL, JVVNL, JoVVNL, AVVNL, BSES Rajdhani Power Ltd and BSES Yamuna Power Ltd.

### **ADDITIONAL CAPITALISATION**

- 5. Regulation 18 of the 2004 regulations provides for considering the additional capital expenditure for tariff as under:
  - (1) The following capital expenditure with in the original scope of work actually incurred after the date of commercial operation and up to the cut off date may be admitted by the Commission, subject to prudence check:
    - (i) Deferred liabilities;
    - (ii) Works deferred for execution;
    - (iii) Procurement of initial capital spares in the original scope of work, subject to ceiling specified in regulation 17:

- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court: and
- (v) On account of change in law.

Provided further that a list of the deferred liabilities and works deferred for execution shall be submitted along with the application for final tariff after the date of commercial operation.

- (2) Subject to the provisions of clause (3) of this regulation, the capital expenditure of the following nature actually incurred after cut off date may be admitted by the commission, subject to prudence check:
  - (i) Deferred liabilities relating to works/services with in the original scope of work;
  - (ii) Liabilities to meet award of arbitration or for compliance of the order or decree of a court:
  - (iii) On account of change in law;
  - (iv) Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost; and
  - (v) Deferred works relating to ash pond or ash handling system in the original scope of work.
- (3) Any expenditure on minor items/assets like normal tools and tackles, personal computers, furniture, air-conditioners, voltage stabilizers, refrigerators, fans, coolers, TV, washing machine, heat-convectors, carpets, mattresses etc. brought after the cut off date shall not be considered for additional capitalization for determination of tariff with effect from 1.4.2004.
- (4) Impact of additional capitalization in tariff revision may be considered by the Commission twice in a tariff period, including revision of tariff after the cut off date.

#### Note 2

Any expenditure on replacement of old assets shall be considered after writing off the gross value of the original assets from the original project cost, except such items as are listed in clause (3) of this regulation.

6. The additional capital expenditure claimed as per books of accounts is as under:

(Rs.in lakh) 2004-05 2005-06 Total Total additional expenditure on the 1237 754 1991 station as per books of accounts Exclusions from books of accounts for 37 (-) 8 29 calculating additional capitalization Additional capital expenditure claimed 1245 717 1962

7. The summary of exclusions from the books of accounts claimed is as under:

(Rs. in lakh)

Head	2004-05	2005-06	Total
Inter Unit transfer	(-) 5.44	(-) 0.77	(-) 6.22
Replacement	(-) 7.27	-	(-) 7.27
FERV	5.03	37.60	42.63
Total	(-) 7.69	36.83	29.14

- 8. In the first instance, we consider the exclusions under different heads in the claim.
- (a) Inter-unit transfers: An amount of (-) Rs.6.22 lakh has been excluded under this head on account of transfer of assets like transformers, communication equipments, furniture etc. to other generating stations of the petitioner. The petitioner has submitted that the Commission in the past had permitted exclusion of such temporary transfers for the tariff purpose and allowed them to be retained in the capital base of the originating station. Accordingly, the petitioner has excluded such amounts as per the entries in

the books of account for the purpose of its claim for additional capitalization. The Commission while dealing with additional capitalization petitions in respect of other generating stations of the petitioner had decided that both positive and negative entries arising out of inter-unit transfers of temporary nature shall be ignored for the purposes of tariff. In consideration of the said decision, the exclusion of the amount of Rs.6.22 lakh on account of inter unit transfer of equipments is allowed.

- (b) Replacement: An amount of Rs.7.27 lakh for the year 2004-05 has been excluded under this head on account of unserviceable vehicles. The petitioner has submitted that unserviceable vehicles have been decapitalised in the books of accounts and these may not be decapitalised for tariff purpose till they are replaced. We do not accept the petitioner's contention since the unserviceable assets cannot be said to be in use and have to be taken out from the capital base for tariff purpose. As and when the petitioner purchases the new assets against the unserviceable assets, the expenditure may be capitalized in accordance with the 2004 regulations. Accordingly, exclusion on account of replacement of vehicles is not allowed.
- **(c) FERV**: The claim for exclusion of an amount of Rs.42.63 lakh on account of impact of FERV is allowed, as the said amount has been billed directly to the beneficiaries in accordance with the 2004 regulations.
- 9. The Commission vide its orders dated 25.7.2007 and 6.9.2007 directed the petitioner to furnish the detailed categorization and consolidation under

different clauses of Regulation 18 of the 2004 regulations for each asset for which capitalization has been claimed, with proper justification. The petitioner by its affidavit dated 22.10.2007 has submitted that all items of capitalization fall under clause (2) of Regulation 18 of the 2004 regulations as shown below:

(In Rupees)

Category	2004-05	2005-06	Total
Deferred liabilities- 18(2) (i)	(-)265979	(-)270072	(-)536051
Liabilities to meet award of arbitration or			
for compliance of the order or decree of a court- 18(2) (ii)	4700707	1236076	5936783
On account of change in law -18(2) (iii)	2857612	(-)29894	2827718
Additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original			
project cost- 18(2) (iv)	7561223	69697215	77258438
Deferred works relating to ash pond or ash handling system in the original scope of work- 18(2) (v)	109610127	1112771	110722898
Total	124463690	71746096	196209786
Total ( in lakh)	1244.64	717.46	1962.10

- 10. The petitioner was directed to furnish the undischarged liability amount included in the additional capital expenditure claimed. The petitioner by affidavit dated 23.8.2007 has submitted that undischarged liability amounting to Rs.109.25 lakh as on 1.4.2005 and Rs. 85.41 as on 1.4.2006 have been included in the claim for additional capitalization.
- 11. After applying prudence check on the asset-wise details and justification of additional capitalization claimed by the petitioner under various categories and by excluding the undischarged liability for the years 2004-05

and 2005-06, the admissibility of additional capitalization is discussed in the succeeding paragraphs.

## Deferred liabilities relating to works/services within the original scope of work {Regulation 18(2)(i)}

12. The petitioner has decapitalised amounts of Rs.2.66 lakh and Rs.2.70 lakh during the years 2004-05 and 2005-06 respectively, on account of balance payments for settlement of liability for diesel loco engine and fire detection and protection system. Decapitalisation of total amount of Rs.5.36 lakh on account of balance payments is allowed.

## Liabilities to meet award of arbitration or for compliance of the order or decree of a court {Regulation 18(2)(ii)}

13. The petitioner has claimed an amount of Rs.47.01 lakh for the year 2004.05 and Rs.12.36 lakh for the year 2005-06, on account of payments made to honour court orders/arbitration awards. These payments were mainly towards compensation for land acquired and balance payments in terms of the arbitration award relating to MGR Coal TPT system. It is observed that these claims include undischarged liability amount of Rs.20.02 lakh. Hence, an amount of Rs.39.35 lakh after disallowing the undischarged liability, is allowed to be capitalized,

### On account of change in law {Regulation 18(2)(iii)}

14. The petitioner has claimed an amount of Rs.28.27 lakh for the years 2004-06 on account of expenditure on ash brick plant and installation of

energy meter for APC segregation for online energy accounting between Stage I and Stage II of the generating station. We note that the claim includes undischarged liablilty amount of Rs.9.67 lakh and the negative entry arising out of balance payment of Rs.0.02 lakh on account of solar water heating system capitalized in the year 2004-05. These are not approved for capitalisation. Accordingly, a net amount of Rs.18.62 lakh is allowed to be capitalized under this head.

### Additional works/services {Regulation 18(2)(iv)}

- 15. The petitioner has claimed additional capital expenditure of Rs.75.61 lakh for the year 2004-05 and Rs.696.97 lakh for the year 2005-06 under the head "additional works/services". The assets/equipment include construction of brick plant, construction of road and vehicle service station in town, software, laying of cable for TV network, solar water system, communication equipments, office equipment, furniture, communication system for MGR signaling system for safety purpose, and supply and erection of additional GT, capital spares and balance payments for the assets capitalized during the tariff period 2001-04.
- 16. In terms of sub-clause (iv) of clause (2) of Regulation 18 of the 2004 regulations, any additional works/services which have become necessary for efficient and successful operation of the generating station can be capitalized. On prudence check, it is noticed that some of the assets are in the nature of O&M expenses or minor items/assets, (like construction of vehicle service station in town, laying of cable for TV network, solar water system,

communication equipments, office equipment, furnitures, and construction of road in town as welfare measures. As the necessity of these assets for efficient and successful operation of the generating station has not been established by the petitioner, the claim for additional capitalization of the expenditure on these items is not allowed.

- 17. The petitioner has submitted that due to frequent failure of Generator transformers (GTs) during the year 1999-2000 for various technical reasons, one more GT of 200 MVA was purchased and erected during the year 2004-05 at a cost of Rs.635.25 lakh. The petitioner has also submitted that the failed GT has been since repaired.
- 18. The first respondent, UPPCL has submitted that the petitioner has not placed on record the approval of the competent authority for the purchase/replacement of the GT and has also not clarified whether the work was within the original scope of work.
- 19. In response to the directions of the Commission for clarification as to whether the additional GT procured by the petitioner is for replacement of the old GT or to be treated as spare, the petitioner during the hearing submitted that the GTs for 500 MW units failed thirteen times and GTs for 200/210 MW units failed six times during the year 1990-2000 on account of di-electric, short circuit, thermal, magnetic circuit and component failures. It has been submitted that in case of outages, requirement of GT, if not available at the

generating station, was met by diversion from the other generating station, thereby causing delays on account of transportation and modifications in the bus-duct and foundations etc., resulting in loss of generation. The petitioner has further submitted that in the case of the generating station, due to failure of 2 nos. of generator transformers in May 1998, there had been loss of generation to the extent of 90 MUs in Unit-I and 150 MUs in Unit-II, thereby necessitating procurement of one 200 MVA single phase additional GT and erecting the same at the generating station.

- 20. We are of the view that a series of failures of the generator transformers are for reasons not attributable to the petitioner. Moreover, the purchase of one more GT and its erection by the petitioner at the generating station is considered necessary for reliable plant operation and is in the interest of beneficiaries. Hence, capitalization of the expenditure after excluding undischarged liability is allowed.
- 21. The petitioner has also claimed capitalisation of spares amounting to Rs.91.10 lakh during the year 2004-06, which do not form part of approved cost. In response to the Commission's order dated 25.7.2007, the petitioner, by affidavit dated 23.8.2007, has clarified that these are the insurance spares. On prudence check, it is observed that the spares procured by the petitioner are for consumption in future and are presently lying in stores. The petitioner has already been allowed to capitalize initial spares in the capital cost of the generating station and maintenance spares as a component of the working

capital have also been allowed, in terms of the 2004 regulations. Hence, these spares can be charged as part of O&M expenses as and when consumed and accordingly, are not allowed to be capitalized.

22. Based on the above discussion, an amount of Rs.614.60 lakh is allowed as calculated as under:

				(Rs.in lakh)
Year	Additional capital expenditure claimed	Additional capital expenditure disallowed	Undischarged liability	Net Additional capital expenditure
2004-05	75.61	76.71	0	(-) 1.10
2005-06	696.97	61.72	19.55	615.70
Total	772.58	138.43	19.55	614.60

# Deferred works relating to ash pond or ash handling system {Regulation 18(2)(v)}

- 23. The petitioner has claimed additional capital expenditure of Rs.1096.10 lakh in 2004-05 and Rs.11.13 lakh in 2005-06 on account of new works under the approved scheme for various civil works in ash dyke. The work of ash dyke has been undertaken by the petitioner for utilization of ash and protection of the environment.
- 24. The capitalization of additional expenditure amounting to Rs.1031.77, during the years 2004-06, under this head, after excluding the undischarged liability amount of Rs.75.46 lakh is allowed, on the ground that the expenditure was necessary for environmental protection.

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### Assets not in use as on 1.4.2005 and 1.4.2006

- 25. The petitioner vide affidavit dated 23.8.2007 has submitted that all assets for which additional capitalization has been claimed, were in use as on 1.4.2005 and 1.4.2006, except those mentioned under "exclusions".
- 26. Based on the discussions in the preceding paragraphs, the additional capital expenditure allowed during the year 2004-06 is as under:

(Rs.in lakh)

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Category	Total Amount claimed	Additional allowed	Capital	Expenditure
	Clairied	2004-05	2005-06	Total
4 5 6 1 11 11111	() 5.00			
1. Deferred liabilities relating to works/services with in the original scope of work - 18(2)(i)	(-) 5.36	(-) 2.66	(-) 2.70	(-) 5.36
2. Liabilities to meet award of arbitration or for compliance of the order or decree of a court - 18(2)(ii)	59.37	29.57	9.78	39.35
3. On account of change in law - 18(2)(iii)	28.28	18.90	(-) 0.28	18.62
4. Any additional works/services which have become necessary for efficient and successful operation of the generating station, but not included in the original project cost - 18(2)(iv)	772.58	(-) 1.10	615.70	614.60
5. Deferred works relating to ash pond or ash handling system in the original scope of work - 18(2)(v)	1107.23	1020.64	11.13	1031.77
Undischarged liability paid	1962.10	1065.35	633.63	47.92
Exclusions not considered	-	(-) 7.27	-	(-) 7.27
Total	1962.10	1058.08	681.55	1739.63

### **CAPITAL COST**

27. As already noted, the Commission had admitted the capital cost of Rs.237257 lakh as on 1.4.2004, excluding FERV, and considered as the

opening gross block as on 1.4.2004 for determining tariff for the period 2004-09.

28. Taking into account the capital cost of the generating station as on 1.4.2004 and the additional capital expenditure for the years 2004-05 and 2005-06, approved by para 26 above, the capital cost for the period 2004-09 is worked out as follows:

(Rs in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Opening capital cost	237257	238314	238996	238996	238996
Additional capital expenditure	1058	681	-	-	-
Closing capital cost	238315	238996	238996	238996	238996
Average Capital cost	237786	238655	238996	238996	238996

### **Debt-Equity ratio**

29. The petitioner in its affidavit dated 23.8.2007 has stated that the additional capital expenditure has been financed from its internal accruals/resources. In terms of clause (1) of Regulation 20 of the 2004 regulations, the debt-equity ratio of 70:30 has been considered for additional capitalization. Accordingly, debt and equity of the generating station on account of additional capitalization work out as under:

(Rs. in lakh)

	2004-05	2005-06
Notional Loan	740.66	477.09
Notional Equity	317.42	204.47

### **Return on Equity**

30. Return on equity is allowed @ 14% on the average normative equity, as follows:

(Rs in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Equity opening	118628	118946	119150	119150	119150
Equity due to Additional	317	204	0	0	0
capitalization					
Equity closing	118946	119150	119150	119150	119150
Average equity	118787	119048	119150	119150	119150
Return on equity @ 14%	16630	16667	16681	16681	16681

### Interest on loan

- 31. Interest on loan has been worked out as mentioned below:
  - (a) In the case of the generating station, the cumulative normative repayment of loan outstanding as on 1.4.2004 has exceeded the gross normative loan. The situation of normative loan exceeding gross loan continues from 1997-98 till date.
  - (b) Notional loan on account of debt-equity ratio, as per para 30 above, is Rs.740.66 lakh during 2004-05 and Rs.477.09 lakh during 2005-06.
  - (c) As the net loan opening after accounting for notional loan arising on account of additional capital expenditure, is negative and with depreciation linked to repayment, the entire notional loan arising on account of additional capital expenditure is deemed to be repaid in the year itself with sufficient amount of depreciation available even when the spread over of depreciation is considered.

- (d) The petitioner has not submitted the basis of their claim for interest on loan arising out of additional capital expenditure with weighted average interest. However, as normative loan repayment exceeds the normative gross loan, the interest on loan is considered as "nil".
- 32. Interest on loan has been computed as under:

(Rs in lakh)

	Up to	2004-05	2005-06	2006-07	2007-08	2008-09
Details	31.3.2004					
Gross Loan	118628					
Opening		-	1	-	-	
Cumulative	163099	1	-	-	-	-
repayment of						
deemed loan upto						
previous year						
Net loan opening		0	0	0	0	0
Additions due to		741	477	0	0	0
Addl.Capitalisation						
Repayment of loan		741	477	0	0	0
during the year						
Net loan Closing		0	0	0	0	0
Average Loan		0	0	0	0	0
Wt.Average Rate of						
Interest		-	-	1	-	-
Interest on Loan		0	0	0	0	0

As Cumulative repayment of loans upto 31.3.2004 is more than normative gross loan as on 31.3.2004, net loan opening has been considered as zero, being negative. Similarly, net loan closing has been considered as zero being negative.

### Depreciation

33. As the normative repayment of loan has exceeded the gross normative loan, the balance depreciation recoverable has been spread over the balance useful life of the generating station after taking into account the additional capital expenditure. The balance useful life of 12.25 years of the generating

station as on 1.4.2004, considered in order dated 19.6.2006 in Petition No.151/2004 has been applied. The necessary calculations are as under:

(Rs in lakh)

		2004-05	2005-06	2006-07	2007-08	2008-09
Opening capital cost	237257	237257	238315	238996	238996	238996
Closing capital cost		238315	238996	238996	238996	238996
Average capital cost		237786	238655	238996	238996	238996
Depreciable value @ 90%	210791	211267	212050	212357	212357	212357
Balance depreciable value	49685	50161	46849	42991	38979	34603
Balance useful life	12.25	12.25	11.25	10.25	9.25	8.25
Depreciation to be recovered		4095	4164	4194	4194	4194
Cumulative depreciation		165201	169366	173560	177754	181948

### **O&M** expenses

34. O&M expenses as considered in the order dated 19.6.2006 in Petition No.151/2004 have been considered.

### Interest on Working capital

35. For the purpose of calculation of working capital, the operating parameters including the price of fuel components considered in the original order dated 19.6.2006 has been kept unaltered. The "receivables" component of the working capital has been revised for the reason of revisions of return on equity, interest on loan etc., The necessary details in support of calculation of interest on working capital are as under:

(Rs in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Fuel Stock	3902	3902	3902	3913	3902
Coal Stock	5606	5606	5606	5621	5606
Oil Stock	330	330	330	331	330
Maintenance spares	3578	3792	4020	4261	4517
O & M expenses	780	811	843	877	913
Receivables	13220	13305	13383	13477	13533
Total Working Capital	23512	23843	24181	24567	24898
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	2410	2444	2479	2518	2552

36. The revised annual fixed charges on the basis of the above in respect of the generating station for the period from 1.4.2004 to 31.3.2009 are summarized as under:

(Rs. in lakh)

Particulars	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on Loan	0	0	0	0	0
Interest on Working					
Capital	2410	2444	2479	2518	2552
Depreciation	4095	4164	4194	4194	4194
Advance	0	0	0	0	0
Against Depreciation					
Return on Equity	16630	16667	16681	16681	16681
O & M Expenses	9360	9730	10120	10520	10950
TOTAL	32495	33005	33474	33913	34377

- 37. The target availability of 80% considered by the Commission in the order dated 19.6.2006 remains unaltered. Similarly, other parameters viz., specific fuel consumption, Auxiliary Power consumption and Station Heat rate etc considered in the order dated 19.6.2006 have been retained for the purpose of calculation of the revised fixed charges.
- 38. The petitioner shall claim the difference from the beneficiaries in six equal monthly installments.
- 39. Petition No.22/2007 stands disposed of in terms of the above.

Sd/-

### (R. KRISHNAMOORTHY) MEMBER

(BHANU BHUSHAN) MEMBER

Sd/-

New Delhi dated the 10<sup>th</sup> July, 2008