

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 132/2009**

**Coram**

- 1. Shri R. Krishnamoorthy, Member**
- 2. Shri S. Jayaraman, Member**
- 3. Shri V.S.Verma, Member**

**Date of Hearing: 8.10.2009**

**Date of Order: 5.1.2010**

**In the matter of**

Approval of generation tariff for Teesta HE Project Stage-V for the period from 1.3.2008 to 31.3.2009.

**And in the matter of**

NHPC Ltd

.....Petitioner

Vs

1. West Bengal State Electricity Distribution Company Ltd, Kolkata
2. Damodar Valley Corporation, Kolkata
3. Department of Power, Govt. of Sikkim, Gangtok
4. Jharkhand State Electricity Board, Ranchi
5. Bihar State Electricity Board, Patna
6. Grid Corporation of Orissa Limited, Bhubaneshwar

.....Respondents

**The following were present:**

1. Shri Prashant Kaul, NHPC
2. Shri M.S. Babu, NHPC
3. Shri S. K. Meena, NHPC
4. Shri Ansuman Roy, NHPC
5. Ms. Niti Singh, NHPC
6. Shri Naveen Samriya, NHPC
7. Shri Tripathi, NHPC
8. Shri R. B. Sharma, Advocate, BSEB

**ORDER**

This petition has been filed by the petitioner, NHPC for determination of generation tariff in respect of Teesta HE Project, Stage-V (hereinafter referred to as "the generation station") for the period 1.3.2008 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 is a peaking type run-of-river with limited pondage and underground power station located in the State of Sikkim and comprises of 3 units of 170 MW each with annual design energy of 2572.67 MU. 12% of the electricity generated is supplied to the State of Sikkim as free power. The dates of commercial operation of the three units of the generating station are as under:

Unit-2	1.3.2008
Unit-3	3.4.2008
Unit-1& COD of generating station	10.4.2008

3. The Commission by its order dated 31.3.2008 in Petition No. 9/2008 had approved the provisional tariff of the generating station from the date of commercial operation at the rate of Rs. 1.62/kWh as under:

*"5.5 (c). Single-part tariff @ Rs. 1.62 per unit (composite) on scheduled saleable energy shall be applicable from the date of commercial operation of the generating station or a unit thereof, on provisional basis and shall continue to apply until further orders"*

4. The details of the fixed charges claimed by the petitioner for the period 1.3.2008 to 31.3.2009 are as under:

Particulars	(Rs. in lakh)			
	2007-08	2008-09		
	Unit-II	Unit-II	Unit II and III	All units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Depreciation	179.29	11.60	81.32	6200.37
Interest on Loan	206.09	14.73	102.98	7972.07
Return on Equity	434.40	28.10	196.72	15006.89
Advance against Depreciation	0.00	0.00	0.00	0.00
Interest on Working Capital	29.78	1.96	13.70	1047.49
O & M Expenses	110.69	7.16	50.25	3832.50
<b>Total</b>	<b>960.24</b>	<b>63.54</b>	<b>444.97</b>	<b>34059.33</b>

5. The details of working capital claimed by the petitioner are as under:

(Rs. in lakh)

Particulars	2007-08	2008-09		
	Unit-II	Unit-II	Unit II and III	All units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Maintenance Spares	871.26	871.26	1746.78	2619.60
O & M expenses	108.90	108.89	1746.78	2619.60
Receivables	1889.51	1932.73	3867.01	5820.06
Total	2869.68	2912.88	5832.14	8767.10
Rate of Interest	12.25%	12.25%	12.25%	12.25%
<b>Interest on Working Capital</b>	<b>351.54</b>	<b>356.83</b>	<b>714.44</b>	<b>1073.97</b>

6. Reply to the petition has been filed by the respondents GRIDCO and BSEB. In response to the public notices published by the petitioner in accordance with the procedure specified by the Commission, no comments have been received from the general public.

#### **Capital cost**

7. Govt. of India vide its Letter No. 8/1/99-DO-NHPC dated 11.2.2000 approved the capital cost of the generating station for Rs.219804.90 lakh including IDC of Rs.20265 lakh at April 1999 price level, with a scheduled completion date of February 2007. Govt. of India vide letter dated 1.2.2008 further sanctioned an amount of Rs.30245 lakh for the year 2007-08. Accordingly, the approved cost as on 31<sup>st</sup> March 2008 amounts to Rs.250049.90 lakh, as detailed below:

- (a) Original capital cost approved  
(with scheduled completion date of February 2007) = Rs.219804.90 lakh  
(b) Sanctioned Annual Plan for the year 2007-08 = Rs. 30245.00 lakh  
(c) Sanctioned capital cost up to 31.3.2008 = **Rs.250049.90 lakh**

8. The petitioner has submitted that the original cost as approved by the Govt. of India at April 1999 price level amounts to Rs.253248.11 lakh at current

price level, after including price escalation and Exchange Rate Variation (ERV), as under:

Total Net cost of project	=	Rs. 219804.90 lakh
Price Escalation	=	Rs. 33404.30 lakh
ERV on Dutch Bank loan	=	(-) Rs. 275.71 lakh
ERV on contractual payments	=	Rs. 314.62 lakh
		-----
<b>Total Cost</b>	=	<b><u>Rs. 253248.11 lakh</u></b>

9. The petitioner has submitted that it has sought the Revised Cost Estimate (RCE) approval of the Govt. of India for an amount of Rs. 281208 lakh in respect of the generating station, by its letter dated 20.7.2009.

#### **Time over-run**

10. The generating station having 510 MW installed capacity is the fifth stage in the cascade development of hydro-projects, on the river Teesta in Sikkim. The approval of the said project was accorded on 28.2.2000 with the completion period of 84 months i.e. in February, 2007. The major civil works in respect of the generating station was awarded in March 2001 (except for diversion tunnel works that was awarded in August 2000). The river diversion was achieved in November 2002 and thereafter, major work of dam package was started, apart from HRT works and power house works. The overall work of the generating station was to be completed by December 2006 in order to commission the generating station during February 2007.

11. The whole construction was divided into five major packages in order to complete the construction activities within the scheduled time. However, during the execution of civil works, various geological hindrances delayed the civil works by more than two years. The petitioner completed the works in January 2008 and the generating station was commissioned in March 2008 i.e. after 13

months from the original commissioning schedule. The petitioner has submitted that some of the major geological failures which delayed the commissioning of the generating station were the left bank slope sliding in dam, HRT Adit-I junction collapse, cavity formation in all the three de-silting chambers at different intervals, occurrence of huge cavities in HRT (face-IV) apart from other ones in the different adits from time to time, surge shaft collapse, poor tunneling media in entire length (2161 meters) of HRT (face-8). The reasons for the time over-run of 13 months and the overall impact of these hindrances (package-wise) submitted by the petitioner are as under:

**(A) Completion of LOT TT-2 (Dam package)**

(i) The work of Lot TT-2 civil works was awarded to M/s Jai Prakash Associates Ltd. on 21.3.2001 and as per the contract, the work as a whole was to be completed by 15.11.2005 i.e. 1700 days after award of the contract. LOT TT-2 civil works includes the construction of coffer dam with deep jet grouted cut-off, concrete dam, DC, Intake structures and part HRT including adit-I. The LOT TT-2 package in all respect has been completed only on 30.9.2008 and the delay was due to various geological and other reasons. The time schedule in respect of this package was as under:

- (a) Scheduled date of commencement: 22.3.2001
- (b) Scheduled date of completion: 15.11.2005
- (c) Scheduled date of completion: 1700 days

(ii) The extension of time for completion of the work against the revised scheduled date of completion of the project was granted in two stages as under:

- (a) 1<sup>st</sup> time extension was accorded for 492 days i.e. 22<sup>nd</sup> March 07.
- (b) 2<sup>nd</sup> time extension was accorded for 284 days i.e. 31<sup>st</sup> December 2007.
- (c) 3<sup>rd</sup> time extension was accorded up to 30.9.2008 (However all the major works had been completed by 25<sup>th</sup> January 2008, but some minor post commissioning works like lift erection, other petty miscellaneous works were left, which have been completed by 30.9.2008.)

(d) Final date of completion was on 30.9.2008.

(iii) The reasons for the delay due to non-completion of works within the scheduled period are as under:

Reasons	Delay in day w.r.t. time extensions			Total time extension (days)
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	
Variation in quantities	36	0	0	36
Variation in methodology	421	0	0	421
Natural hindrances	101	0	0	101
Plugging of diversion tunnel	0	284	0	284
Due to curtain grouting in dam	0	0	274	274
<b>Total delays (days)</b>	<b>492</b>	<b>284</b>	<b>274</b>	<b>1050</b>

(iv) It is observed from the above facts that the delay of 1050 days has occurred on account of increase in anticipated quantities, adverse geological conditions leading to natural hindrances in underground and surface works, change in working methodologies, etc.

(iv) The hindrances encountered during execution are as under:

- (a) Delay in river diversion by 3 months.
- (b) HRT Adit-I junction collapse in May 2002
- (c) Cavity occurred in DC-I, DC-II and DC-III at different intervals during excavation.
- (d) Left bank hill slope failures and subsequent delay in start of dam concreting as well as increase in the excavation quantity.
- (e) Various cavities formation at different RDs in HRT face-I during tunneling due to poor rock conditions.

**(B) Completion of LOT TT-3 (HRT package)**

(i) The work of LOT TT-3 civil works was awarded to M/s Jai Prakash Associates Ltd. on 21.3.2001. As per the contract, work as a whole was to be completed by 22.10.2006 i.e. 2040 days after award of the contract. LOT TT-3 package includes the construction of underground structure i.e. 13.811 km. long head race tunnel (9.5 meter finished dia). Due to various geological and other reasons, the time for the completion of project was extended up to 17.5.2007 i.e for 207 days and

subsequently up to 30.11.2007 i.e 197 days (totaling 404 days). The final date of completion was 30.11.2007. LOT TT-3 works were completed on 30.11.2007 with a resultant delay of 404 days.

(ii) The reasons for the delay for non-completion of works within scheduled period are as under:

Reasons	Delay in days w.r.t. Time extensions		Total Time extension (days)
	1 <sup>st</sup>	2 <sup>nd</sup>	
Delay due to damage of supports due to geological surprises	5	0	5
Stoppage due to geological surprises	192	0	192
Erection of wall beam	10	0	10
Delay due to cavity treatment at different faces	0	104	104
Delay due to contract value of work	0	93	93
<b>Total delay (Days)</b>	<b>207</b>	<b>197</b>	<b>404</b>

(iii) The certified date of completion for the LOT TT-3 package is 30.9.2007. The reasons for delay of 404 days is attributed to adverse geological conditions, change in rock classification in excavation especially of Adit-III/IV and cavity formation which had accounted for a delay of 301 days.

(iv) The main hindrances encountered during execution are as under, namely:

- (1) Cavity treatment in HRT, Face-II and III at different intervals.
- (2) Cavity treatment in HRT, Face-VI and VII at different intervals.
- (3) The main cause of delay in HRT has been due to huge cavities occurred in HRT (Face-IV) at RD 960 in June 2003 and again at RD 1470 in June 2004 which took almost 4 and 12 months respectively in treatment.
- (4) Additional work of 207 meter tunneling beyond the scope of HRT package in order to arrest the delay being faced in HRT (Face-VIII), which was in the scope of Power House, LOT TT-4 package works.

**(C) Completion of LOT TT-4 (Power House Package)**

(i) The LOT TT-4 civil works were awarded to M/s Jai Prakash Associates Ltd. on 21.3.2001. As per the contract, work as a whole was to be completed by 20.9.2005 i.e. within 1644 days after award of the contract. LOT TT-4 package

includes the construction of underground structure i.e. HRT, Surge Shaft, MAT to Machine Hall, MAT to TG, Transformer Hall, Ventilation Tunnel, Cable Tunnel, TRT etc. The LOT TT-4 package in all respect has been completed on 21.1.2008 due to various geological and other reasons. As per the contract, time schedule of this package is as under:

Scheduled date of commencement:	21.3.2001
Scheduled date of completion:	20.9.2005
Scheduled Completion period:	1644 days
Deduction of account of handling over of some works to M/s Gammon(l) Ltd:	91 days
Additional access made through link tunnel and LSG to HRT	140 days
<b>Total</b>	<b>231 days</b>
Revised completion time	1413 days
Revised scheduled completion date	1.2.2005

(ii) The total extension for completion of work against the revised scheduled time for completion was granted in three stages as under:

(1) 1 <sup>st</sup> time extension was accorded up to 6.2.2007	727 days
(2) 2 <sup>nd</sup> time extension was accorded up to 30.9.2007	247 days
(3) 3 <sup>rd</sup> time extension was accorded up to 31.1.2008	120 days
<b>Total</b>	<b>1094 days</b>

Final date of completion: 30.9.2008

(ii) The reasons for the delay for non-completion of works within the scheduled period are as under:

Reasons	Delay in days w.r.t. time extensions			Total time extension (days)
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	
Change in rock classification in excavation of Adit-V	99	0	0	99
Change in rock classification of HRT (Face-VIII)	559	40	20	619
Due to change of location of Adit-V portal	58	0	0	58



Adverse geological Conditions/Formations of cavities and its treatment in HRT	0	42	0	42
Blockade of lower surge gallery at RD 335 to 346m	0	32	0	32
Blockade/collapse of HRT (Face-VIII) between RD 1850-1930m and RD 1730-1821m	0	133	100	233
Other reasons of delay	11	0	0	11
<b>Total Delays (days)</b>	<b>727</b>	<b>247</b>	<b>120</b>	<b>1094</b>

(iii) The certified date of completion for the LOT TT-4 package was 21<sup>st</sup> January 2008. It is observed from the above facts that delay of 1094 days has occurred on account of adverse geological conditions, change in rock classification in excavation of Adit-V, change in rock classification in HRT and cavity formation which accounted for total delay 1025 days out of total 1094 days of delay.

(iv) The main hindrances encountered during execution are as under:

(1) Various cavities occurred in HRT (Face-VIII) during excavation and due to encounter of weaker geology (almost class IV/V rock condition) of the area throughout the entire length of 2.161 kms. The whole works of power house package got delayed by 2 years 4 months from the contractual completion date i.e. September 2005 and could be completed in January 2008;

(2) Encounter of poor rock zones in Lower Surge Gallery and hence various cavities formed during execution;

(3) Rebuilding of surge shaft after its collapse in October 2003 when almost 90% excavation was completed; and

(4) Weak rock strata encountered during excavation/lowering of pressure shafts.

12. In view of the justification submitted by the petitioner, we are of the view that the time taken for the completion of the generating station was on account of circumstances which were beyond the control of the petitioner for which the petitioner could not be made responsible. Hence, accepted.

**Cost over-run**

13. The original capital expenditure of the generating station, approved by the Government of India by its letter dated 11.2.2000 was Rs. 219804.90 lakh including IDC of Rs. 20265.00 lakh, (April 1999 price level) which was subsequently revised to Rs. 250049.90 by the Government of India vide letter dated 1.2.2008. The actual date of commercial operation of the generating station is 1.4.2008 for the purpose of tariff. The petitioner has submitted the reasons for cost over-run for the generating station which are summarized as under:

**(A) Original capital expenditure of the generating station as on April 1999 vis-à-vis current price level.**

14. It is observed that the cost against the elements dam, intake and desilting chambers; HRT, TRT, surge shaft and pressure shaft; power plant civil works and hydro-mechanical equipment as given in the statement of original approved project cost at current price level and actual project cost as on the date of the commercial operation has been apportioned to the civil works and power plants component as in the statement of original approved project cost at April 1999 price level on the basis of original approved cost for the purpose of comparison. The plant and equipments cost has been considered as electrical works cost.

15. The detailed comparison of original cost at April 1999 price level vis-à-vis current price level is as below:

(Rs. in lakh)

Sl. No.	Description	Original cost (at April-1999 price level) (A)	Original cost (at current price level) (B) March 2008	Difference of current price level with April 1999 price level (C=B-A)	
				Amount	%
<b>1</b>	<b>Direct cost (excluding electrical works)</b>				
I	<b>Works</b>				
A	Preliminary	1035.53	1035.53	0.00	0.00%
B	Land	3030.52	3030.52	0.00	0.00%
C	Civil works	20737.34	26416.21	5678.87	27.38%
J	Power plants	88034.46	112142.46	24108.00	27.38%
K	Buildings	3917.69	3917.69	0.00	0.00%
O	Miscellaneous	7443.82	7443.82	0.00	0.00%
P	Maintenance during construction	1152.36	1152.36	0.00	0.00%
Q	Special tools and plants	5549.06	5549.06	0.00	0.00%
R	Communication	2546.50	2546.50	0.00	0.00%
X	Environment & Ecology	3515.71	3515.71	0.00	0.00%
Y	Losses on stock	288.10	288.10	0.00	0.00%
	<b>TOTAL</b>	<b>137251.09</b>	<b>167037.96</b>	<b>29786.87</b>	21.70%
II	Establishment (9% of I-works less B-Land)	12081.47	12081.47	0.00	0.00%
III	Tools and plants (1% of I-works)	1372.69	1372.69	0.00	0.00%
IV	Suspense	0.00	0.00	0.00	
V	Receipt and Recoveries	(-) 3893.05	(-)3893.05	0.00	0.00%
<b>2</b>	<b>Indirect cost (excluding electrical works)</b>				
I	Capitalized value of abatement of land revenue	66.44	66.44	0.00	0.00%
II	Audit and accounts charges (1% of I-works)	1372.69	1372.69	0.00	0.00%
A	<b>Total Net Cost</b>	<b>148251.33</b>	<b>178038.20</b>	<b>29786.87</b>	<b>20.09%</b>
B	<b>Cost of electrical works</b>	51288.76	54945.11	3656.35	7.13%
	<b>Total Hard Cost (A+B)</b>	<b>199540.09</b>	<b>232983.31</b>	<b>33443.22</b>	<b>16.76%</b>
C	Interest During Construction	20264.81	20264.81	0.00	0.00%
	Exchange Rate Variation	0	0	0	0
	<b>Total Net Cost of Project [A+B+C]</b>	<b>219804.90</b>	<b>253248.12</b>	<b>33443.22</b>	<b>15.21%</b>

(Rs. in lakh)

1	<b>Major Civil Works</b>	
a	Dam, Intake and Desilting chambers	40766.57
b	HRT, TRT, Surge shaft and Pressure shaft	82054.81
c	Power plant civil works	8062.08
d	Hydro-mechanical equipments	7675.21
		<b>138558.67</b>
2	Plant and Equipments	<b>54945.11</b>

(Rs. in lakh)	
Price Escalation	33404.30
ERV on Dutch loan	(-) 275.71
ERV on contractual payments	314.62
<b>Total</b>	<b>33443.21</b>

16. It is noticed that there is an increase of Rs. 33443.22 lakh on account of price escalation as per the contract agreement, ERV on Dutch loan and ERV on contractual payments against civil works and power plants. Moreover, any escalation in the cost on account of price escalation is as per the contract agreement and ERV is considered as allowable expenditure.

**(B) Original capital expenditure at current price level of the generating station as per revised cost estimate.**

17. The detailed comparison of original cost at current price level with that of revised cost estimate is tabulated as below:

(Rs. in lakh)					
Sl. No.	Description	Original cost (at current price level) (B) March 2008	As per revised cost estimate (submitted for approval) (D)	Difference of revised cost estimate with current price level (E=D-B)	
				Amount	%
		PL			
1	<b>Direct cost (excluding electrical works)</b>				
I	<b>Works</b>				
A	Preliminary	1035.53	1056.89	21.36	2.06%
B	Land	3030.52	5241.37	2210.85	72.95%
C	Civil works	26416.21	43466.07	17049.86	64.54%
J	Power plants	112142.46	126908.80	14766.34	13.17%
K	Buildings	3917.69	7034.31	3116.62	79.55%
O	Miscellaneous	7443.82	9352.18	1908.36	25.64%
P	Maintenance During Construction	1152.36	1939.33	786.97	68.29%
Q	Special Tools and Plants	5549.06	381.25	(-) 5167.81	(-) 93.13%
R	Communication	2546.50	5614.28	3067.78	120.47%
X	Environment & Ecology	3515.71	5776.5	2260.79	64.31%
Y	Losses on stock	288.10	25.59	(-)262.51	(-) 91.12%
	<b>Total</b>	<b>167037.96</b>	<b>206796.57</b>	<b>39758.61</b>	<b>23.80%</b>
II	Establishment (9% of I-works less B-	12081.47	16852.38	4770.91	39.49%

	Land)				
III	Tools and plants (1% of I-works)	1372.69	342.04	(-) 1030.65	(-) 75.08%
IV	Suspense	0.00	0.00	0.00	
V	Receipt and Recoveries	(-) 3893.05	(-) 12821.62	(-) 8928.57	229.35%
2	<b>Indirect cost (excluding electrical works)</b>				
I	Capitalized value of abatement of land revenue	66.44	0.00	(-) 66.44	(-) 100.00%
II	Audit and accounts charges (1% of I-works)	1372.69	1958.37	585.68	42.67%
A	<b>Total Net Cost</b>	<b>178038.20</b>	<b>213127.74</b>	<b>35089.54</b>	<b>19.71%</b>
B	<b>Cost of electrical works</b>	54945.11	35534.77	(-) 19410.34	(-) 35.33%
	<b>Total Hard Cost (A+B)</b>	<b>232983.31</b>	<b>248662.51</b>	<b>15679.20</b>	<b>6.73%</b>
C	Interest During Construction	20264.81	32546.14	12281.33	60.60%
	Exchange Rate Variation				
	<b>Total Net Cost of Project [A+B+C]</b>	<b>253248.12</b>	<b>281208.65</b>	<b>27960.53</b>	<b>11.04%</b>

18. It is noticed that there is an overall increase of Rs. 15679.20 lakh (6.73%) on account of hard cost and an amount of Rs. 12281.33 (60.60%) on account of IDC.

**(C) Original project cost at current price level to actual cost as on the date of commercial operation**

19. The detailed comparison of original cost at current price level to actual cost as on the date of commercial operation is as under:

(Rs. in lakh)					
Sl. No	Description	Original cost (at current price level) (B) March 2008	Actual cost as on the date of commercial operation (F)	Difference of actual cost with current price level (G=F-B)	
		PL		Amount	%
1	<b>Direct cost (excluding electrical works)</b>				
I	<b>Works</b>				
A	Preliminary	1035.53	896.89	(-) 138.64	(-) 13.39%
B	Land	3030.52	5041.46	2010.94	66.36%
C	Civil works	26416.21	33610.28	7194.07	27.23%
J	Power plants	112142.46	142682.85	30540.39	27.23%
K	Buildings	3917.69	5643.22	1725.53	44.04%
O	Miscellaneous	7443.82	9352.18	1908.36	25.64%

P	Maintenance During Construction	1152.36	1939.33	786.97	68.29%
Q	Special Tools and Plants	5549.06	164.92	(-)5384.14	(-)97.03%
R	Communication	2546.50	5121.51	2575.01	101.12%
X	Environment & Ecology	3515.71	4317.77	802.06	22.81%
Y	Losses on stock	288.10	25.59	(-)262.51	(-)91.12%
	<b>Total</b>	<b>167037.96</b>	<b>208796.00</b>	<b>41758.04</b>	<b>25.00%</b>
II	Establishment (9% of I-works less B-Land)	12081.47	17008.93	4927.46	40.79%
III	Tools and plants (1% of I-works)	1372.69	342.04	(-) 1030.65	(-) 75.08%
IV	Suspense	0.00	0.00	0.00	0.00
V	Receipt and Recoveries	(-)3893.05	(-) 12821.62	-8928.57	229.35%
2	<b>Indirect cost (excluding electrical works)</b>				
I	Capitalized value of abatement of land revenue	66.44	0.00	(-) 66.44	(-) 100.00%
II	Audit and Accounts charges (1% of I-works)	1372.69	0.00	(-) 1372.69	(-) 100.00%
A	<b>Total Net Cost</b>	<b>178038.20</b>	<b>213325.35</b>	<b>35287.15</b>	<b>19.82%</b>
B	<b>Cost of electrical works</b>	54945.11	31484.77	(-) 23460.34	(-) 42.70%
	<b>Total Hard Cost (A+B)</b>	<b>232983.31</b>	<b>244810.12</b>	<b>11826.81</b>	<b>5.08%</b>
C	Interest During Construction	20264.81	17149.46	(-) 3115.35	(-) 15.37%
	Exchange Rate Variation				
	<b>Total Net Cost of Project [A+B+C]</b>	<b>253248.12</b>	<b>261959.58</b>	<b>8711.46</b>	<b>3.44%</b>

(Rs. in lakh)			
	Major Civil Works		
a	Dam, Intake and Desilting chambers	40766.57	40491.04
b	HRT, TRT, Surge shaft and Pressure shaft	82054.81	121487.4
c	Power plant civil works	8062.08	6818.41
d	Hydro-mechanical equipments	7675.21	7496.26
		<b>138558.67</b>	<b>176293.1</b>
2	Plant and Equipments	<b>54945.11</b>	<b>31484.77</b>

20. It is noticed that there is an overall increase of Rs. 11826.81 lakh (5.08%) on account of hard cost and decrease of an amount of Rs. 3115.35 lakh (15.37) on account of IDC.

**Cost as per revised cost estimate to actual cost of generating station as on the date of commercial operation**

21. The detailed comparison of project cost as per the revised cost estimate to that of actual cost as on date of commencement is tabulated below:

(Rs.in lakh)

Sl. No	Description	Revised cost estimate (submitted for approval) (D)	Actual cost as on the date of commercial operation (F)	Difference of actual cost with revised cost estimate (H=F-D)	
				Amount	%
1	<b>Direct cost (excluding electrical works)</b>				
I	<b>Works</b>				
A	Preliminary	1056.89	896.89	(-) 160.00	(-) 15.14%
B	Land	5241.37	5041.46	(-) 199.91	(-) 3.81%
C	Civil Works	43466.07	33610.28	(-) 9855.79	(-) 22.67%
J	Power Plants	126908.80	142682.85	15774.05	12.43%
K	Buildings	7034.31	5643.22	(-) 1391.09	(-) 19.78%
O	Miscellaneous	9352.18	9352.18	0.00	0.00%
P	Maintenance During Construction	1939.33	1939.33	0.00	0.00%
Q	Special Tools and Plants	381.25	164.92	(-) 216.33	(-) 56.74%
R	Communication	5614.28	5121.51	(-) 492.77	(-) 8.78%
X	Environment & Ecology	5776.5	4317.77	(-)1458.73	(-) 25.25%
Y	Losses on Stock	25.59	25.59	0.00	0.00%
	<b>TOTAL</b>	<b>206796.57</b>	<b>208796.00</b>	<b>1999.43</b>	<b>0.97%</b>
II	Establishment (9% of I-works less B-Land)	16852.38	17008.93	156.55	0.93%
III	Tools and plants (1% of I-works)	342.04	342.04	0.00	0.00%
IV	Suspense	0.00	0.00	0.00	0.00
V	Receipt and Recoveries	(-) 12821.62	(-) 12821.62	0.00	0.00%
2	<b>Indirect cost (excluding electrical works)</b>				
I	Capitalized value of Abatement of Land Revenue	0.00	0.00	0.00	0.00
II	Audit and Accounts charges (1% of I-works)	1958.37	0.00	(-) 1958.37	(-) 100.00%
A	<b>Total Net Cost</b>	<b>213127.74</b>	<b>213325.35</b>	<b>197.61</b>	<b>0.09%</b>
B	<b>Cost of electrical works</b>	35534.77	31484.77	(-) 4050.00	(-) 11.40%
	<b>Total Hard Cost (A+B)</b>	<b>248662.51</b>	<b>244810.12</b>	<b>(-) 3852.39</b>	<b>(-) 1.55%</b>
C	Interest During Construction	32546.14	17149.46	(-)15396.68	(-)47.31%
	Exchange Rate Variation				
	<b>Total Net Cost of Project [A+B+C]</b>	<b>281208.65</b>	<b>261959.58</b>	<b>(-) 19249.07</b>	<b>(-) 6.85%</b>

(Rs. in lakh)

1	Major Civil Works	
a	Dam, Intake and Desilting chambers	40491.04
b	HRT, TRT, Surge shaft and Pressure shaft	121487.4
c	Power plant civil works	6818.41
d	Hydro-mechanical equipments	7496.26
		<b>176293.1</b>
2	Plant and Equipments	<b>31484.77</b>

22. It is noticed that the actual expenditure incurred up to the date of commercial operation is below the revised cost estimate submitted by the petitioner for approval of the Govt. of India, by an amount of Rs.3852.39 lakh (1.55%) on account of hard cost and Rs. 15396.68 lakh (47.31%) on account of IDC. The petitioner has claimed Rs 261959.58 lakh as the actual capital cost as on date of commercial operation of the generating station. There is a net cost overrun of Rs. 8711.46 lakh over the escalated cost of Rs 253248.11 lakh at the March 2008 price level (3.44%) which was beyond the control of the petitioner, for which the petitioner could not be made responsible. Hence, the justification is accepted.

### **Capital cost**

23. Regulation 33 of the 2004 Regulations provides as under:

*“Subject to prudence check by the Commission, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the date of commercial operation of the generating station and shall include initial capital spares subject to a ceiling norm of 1.5% of the original project cost as on the cut off date.*

*Provided further that where the power purchase agreement entered into between the generating company and the beneficiaries provides a ceiling of actual expenditure, the capital expenditure shall not exceed such ceiling for determination of tariff.*

*In case of existing generating stations, the project cost admitted by the Commission prior to 1.4.2004 shall form the basis for determination of tariff.”*

24. The petitioner, in order to arrive at the capital cost as on the date of commercial operation of each unit of the generating station, has capitalized common facilities on the basis of installed capacity of each unit, for the purpose of tariff. The petitioner has also considered the actual capital expenditure up to the date of commercial operation of the generating station i.e 10.4.2008 as capital cost for the purpose of tariff. Accordingly, the capital cost claimed by the petitioner for the purpose of tariff, is as under:



(Rs in lakh)		
Unit. No.	Date of commercial operation	Capital cost
2	1.3.2008	87126.23
3	3.4.2008	174677.76
1	10.4.2008	261959.58

The above capital cost has been considered for the purpose of tariff.

#### **Initial spares**

25. As per Regulation 33 of the 2004 regulations, the admitted capital cost shall include "initial capital spares subject to ceiling norm of 1.5% of the original project cost as on cut-off date."

26. The petitioner has submitted that the cost of initial spares included in the capital cost is Rs. 1098.11 lakh as on the date of commercial operation, which is 0.50% of the original capital cost of Rs. 219804.90. The original cost of the generating station as on the cut-off date is higher than Rs. 219804.90 lakh. As the cost of initial spares is within the ceiling norms specified in the 2004 regulations, the same is considered.

#### **Infirm power**

27. The petitioner has submitted that an amount of Rs. 4391 lakh earned from the sale of infirm power has been deducted from the books of accounts in order to arrive at the gross block of Rs.261959.58 lakh. This has been considered.

#### **FERV**

28. The petitioner has submitted that the capital cost of Rs.261959.58 lakh includes an amount of (-) Rs.275.71 lakh on account of FERV. This is found to be in order and hence, considered.

### **IDC and Financing charges**

29. The capital cost of Rs.261959.58 lakh includes an amount of Rs.7924.24 lakh incurred on account of interest during construction and Rs. 9225.22 lakh towards loan financing charges. As per books of accounts, capital cost, after deduction of infirm power amounting to Rs. 4391 lakh is Rs. 265030 lakh. However, for the purpose of tariff, the petitioner has claimed capital cost of Rs. 261960 lakh. The difference of Rs.1430 lakh in the capital cost is on account of the difference in interest during construction because of different methodologies adopted by the petitioner in apportioning the common facilities to the respective units as on the date of commercial operation of the generating station. Thus, the total expenditure incurred on payment of interest during construction and financing charges amounting to Rs.17149.46 lakh is less than the IDC approved in the original capital cost estimate amounting to Rs.20265 lakh. The petitioner has deployed equity of more than 30% during the construction period and on prudence check, the same is found to be in order.

### **Undischarged liability**

30. The petitioner has submitted that there are undischarged liabilities of Rs. 8202.34 lakh, Rs 7371.53 lakh and Rs 13015.87 lakh as on the date of commercial operation of Unit-2, Unit-3 and Unit-1 respectively. The undischarged liabilities amounting to Rs.13015.87 lakh has been reduced from the capital cost.

31. In view of the discussions in the preceding paragraphs, the capital cost of as on the date of commercial operation of the generating station i.e 10.4.2008, after accounting for undischarged liabilities, is as under:

	(Rs. in lakh)		
	Unit-II	Unit-III	Unit II and III
Date of commercial operation	<b>1.3.2008</b>	<b>3.4.2008</b>	<b>10.4.2008</b>
Approved Capital cost	87126.23	174677.76	261959.58
Less: Undischarged liability	8202.34	7371.53	13015.87
<b>Capital cost for the purpose of tariff</b>	<b>78923.89</b>	<b>167306.23</b>	<b>248943.71</b>

32. The capital cost of Rs 248943.71 lakh as on the date of commercial operation of the generating station being less than the sanctioned capital cost of Rs 250049.90 lakh is allowed for the purpose of tariff. The petitioner is directed to submit the Revised Cost Estimates as and when received along with details of liabilities discharged.

#### **Debt-Equity Ratio**

33. Clause (2) of Regulation 36 of the 2004 Regulations provides as follows:

*“(2) In case of the generating stations for which investment approval was accorded prior to 1.4.2004 and which are likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt and equity in the ratio of 70:30 shall be considered:*

*Provided that where equity actually employed to finance the project is less than 30%, the actual debt and equity shall be considered for determination of tariff:*

*Provided further that the Commission may in appropriate cases consider equity higher than 30% for determination of tariff, where the generating company is able to establish to the satisfaction of the Commission that deployment of equity higher than 30% was in the interest of general public.”*

34. The original project cost approved by the Govt. of India, during February, 2000, was Rs. 219804 lakh with a debt-equity ratio of 1:1. Subsequently, the Govt. of India provided Rs. 109902 lakh as equity and the balance amount of Rs. 109902 lakh had been raised by the petitioner from the market, financial institutions and internal resources.

35. The financing pattern as on the date of commercial operation of the generating station, submitted by the petitioner is as under:

(Rs. In lakh)

S. No	Source	Amount	
1	<b>Debt</b>		
a	Domestic loans	70500.00	
b	Foreign Loan	70148.27	
		140648.28	56.14%
2	<b>Equity</b>	109902.00	43.86%
3	<b>Total</b>	250550.28	100%
4	Undischarged liability	13015.87	
5	<b>Total</b>	263566.14	
6	Excess funding	1606.56	
7	<b>Capital Cost as on date of commercial operation</b>	261959.58	

36. The petitioner has considered the approved equity of Rs. 109902 lakh in its calculations for the purpose of tariff. The petitioner has also considered one third and two third of Rs. 109902 lakh, amounting to Rs. 36634 lakh and Rs.73268 lakh as equity as on date of commercial operation of Unit-2 (1.3.2008) and Unit-3 (3.4.2008), respectively.

37. The respondents GRIDCO and BSEB have objected to the claim of the petitioner and have submitted that the debt-equity ratio of 70:30 should be considered as per the 2004 regulations.

38. The details of the capital deployed in respect of the generating station are as under:

(Rs. in lakh)

						Equity		Total Capital Employed
	LIC	PFC	Foreign Loan	Total Debt	Debt (%)	Equity	Equity (%)	
1997-98	0.00	0.00	0.00	0.00	0.00%	500.00	100.00%	500.00
1998-99	0.00	0.00	0.00	0.00	0.00%	500.00	100.00%	500.00
1999-00	0.00	0.00	0.00	0.00	0.00%	3500.00	100.00%	3500.00
2000-01	0.00	0.00	0.00	0.00	0.00%	16500.00	100.00%	16500.00
2001-02	0.00	0.00	0.00	0.00	0.00%	37218.00	100.00%	37218.00
2002-03	0.00	0.00	6256.59	6256.59	8.48%	67553.00	91.52%	73809.59
2003-04	0.00	0.00	6673.31	6673.31	6.56%	95053.00	93.44%	101726.31
2004-05	0.00	0.00	25195.51	25195.51	18.65%	109902.00	81.35%	135097.51

<b>2005-06</b>	0.00	0.00	64205.36	64205.36	36.88%	109902.00	63.12%	174107.36
<b>2006-07</b>	39500.00	0.00	63386.92	102886.92	48.35%	109902.00	51.65%	212788.92
<b>2007-08</b>	58500.00	12000.00	68369.66	138869.66	55.82%	109902.00	44.18%	248771.66
<b>2008-09</b>	58500.00	12000.00	70148.27	140648.27	56.14%	109902.00	43.86%	250550.27

39. Proviso to Clause (2) of Regulation 36 of the 2004 regulations provides that the Commission in appropriate cases could consider equity higher than 30% if the generating station is able to establish to the satisfaction of the Commission that the deployment of equity higher than 30% was in the interest of general public.

40. It is observed from the table at para 38 above that during the years from 1997-98 to 2001-02, 100% of the capital employed in the generating station has been in the form of equity, and during the years 2002-03 to 2004-05 more than 80% of the capital employed has been in the form of equity. During the years 2005-06 and 2006-07 more than 50% of the capital employed has been in the form of equity. Thus, infusion of equity has resulted in huge savings in the form of interest during construction has reduced the capital cost of the generating station and has benefitted the beneficiaries/consumers. In view of the above, the equity amount of Rs.109902.00 lakh as on the date of commercial operation of the generating station has been considered for the purpose of tariff.

41. The amount of debt and equity as on 10.4.2008, considered for the purpose of tariff, is as under:

(Rs. in lakh)			
	Unit-II	Unit-II	All Units
	1.3.2008	3.4.2008	10.4.2008
Debt	42289.89	94038.23	139041.71
Equity	36634.00	73268.00	109902.002
<b>Total</b>	<b>78923.89</b>	<b>167306.23</b>	<b>248943.71</b>

42. The undischarged liability of Rs 13015.87 lakh as on the date of commercial operation of the project shall be considered as debt as and when the same is discharged. As the equity amounting to Rs.109902.02 lakh has been considered, any additional expenditure incurred and admitted by the Commission after the date of commercial operation upto the approved revised capital for the generating station shall also be considered as debt for the purpose of tariff.

### Return on Equity

43. 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 of the 2004 regulations @ 14% per annum. Equity invested in foreign currency has been allowed a return in the same currency and the payment on this account made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

44. Return on equity is calculated @ 14% as under:

(Rs. in lakh)

Years	2007-08	2008-09		
	Unit-II	Unit-II	Unit II and III	All units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Opening Equity	36634.00	36634.00	73268.00	109902.00
Additions due to additional capitalisation	0.00	0.00	0.00	0.00
Closing equity	36634.00	36634.00	73268.00	109902.00
Average equity	36634.00	36634.00	73268.00	109902.00
<b>Return on Equity</b>	<b>434.40</b>	<b>28.10</b>	<b>196.72</b>	<b>15006.89</b>

### Interest on loan

45. Clause (i) of Regulation 38 of the 2004 regulations provides as under:

*(a) Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicate in Regulation 36;*

- (b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan in accordance with Regulation 36 minus cumulative repayment as admitted by the Commission or any other authority having power to do so, up to 31.3.2004. The repayment for the period 2004-09 shall be worked out on a normative basis;*
- (c) The generating company shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The costs associated with such re-financing shall be borne by the beneficiaries;*
- (d) The changes to the loan terms and conditions shall be reflected from the date of such re-financing and benefit 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.*

46. The interest on loan has been calculated out as per details given below:
- (i) The opening gross normative loan as on the date of commercial operation of each unit has been worked out in accordance with Regulations 36 of the 2004 regulations.
  - (ii) The date of commercial operation of the generation station is 10.4.2008, and repayment of loan up to 9.4.2008 has been considered as 'nil'.
  - (iii) The financing charges against foreign loans have been considered in the calculation of weighted average rate of interest.

(iv) On the basis of actual rate of interest considered on the yearly average loan, the weighted rate of interest on average loan has been worked out and applied on the normative average loan during the year.

47. The interest on notional loan by applying the weighted average rate of interest has been computed as under:

(Rs. in lakh)

	Unit-II	Unit-II	Unit-II and III	All Units
	1.4.2008 to 31.3.2009	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Gross Opening loan	42289.89	42289.89	94038.23	139041.71
Cumulative repayment up to previous year	0.00	0.00	0.00	0.00
Net Loan-opening	42289.89	42289.89	94038.23	139041.71
Repayment during the year	0.00	0.00	0.00	5892.30
Add: Additional capitalization	0.00	0.00	0.00	0.00
Net loan closing	42289.89	42289.89	94038.23	133149.41
Average loan	42289.89	42289.89	94038.23	136095.56
Weighted Average Rate of Interest on loan	5.42%	5.70%	5.72%	5.68%
<b>Interest</b>	<b>194.02</b>	<b>13.20</b>	<b>103.14</b>	<b>7546.15</b>

## Depreciation

48. 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 capitalization on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government/Commission.*

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



(v) 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.

49. The petitioner has claimed depreciation at the weighted average rate of depreciation of 2.43% on the capital expenditure which has been considered in terms of the 2004 regulations.

50. Accordingly, depreciation of the generating station has been worked out as under:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Opening Gross block	78923.89	78923.89	167306.23	248943.71
Add: Additional capitalization	0.00	0.00	0.00	0.00
Closing Gross block	78923.89	78923.89	167306.23	248943.71
Average Gross block	78923.89	78923.89	167306.23	248943.71
Rate of depreciation	2.43%	2.43%	2.43%	2.43%
Depreciable value	70279.18	70279.18	149070.96	221792.37
Remaining Depreciable value	70279.18	70116.96	148898.24	221541.79
<b>Depreciation</b>	<b>162.22</b>	<b>10.49</b>	<b>77.87</b>	<b>5892.30</b>

### Advance Against Depreciation

51. Sub-clause (b) of clause (ii) of Regulation 38 of the 2004 regulations provides as under:

*"In addition to allowable depreciation, the generating company shall be entitled to Advance Against Depreciation, computed in the manner given hereunder:*

*AAD = Loan repayment amount as per regulation 38(i) subject to a ceiling of 1/10<sup>th</sup> of loan amount as per regulation 36 minus depreciation as per schedule.*

*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;*

*Provided further 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".*

52. Advance Against Depreciation up to 9.4.2008 has been worked out as under:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
1/10th Gross Loan(s)	4228.99	4228.99	9403.82	13904.17
Repayment of the loan	0.00	0.00	0.00	5892.30
Minimum of the above	0.00	0.00	0.00	5892.30
Depreciation during the year	162.22	10.49	77.87	5892.30
(A) Difference	(-) 162.22	(-) 10.49	(-) 77.87	0.00
Cumulative Depreciation against	0.00	0.00	0.00	5892.30
Cumulative Depreciation/ Advance against	162.22	172.72	250.58	6142.88
(B) Difference	(-)162.22	(-)172.72	(-)250.58	(-) 250.58
<b>Advance against Depreciation Minimum of (A) and (B)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### O & M Expenses

53. Sub-clause (c) of clause (iv) of Regulation 38 of the 2004 regulations, pertaining to O & M expenses of hydro stations provides as under:

*"In case of hydro electric generating stations declared under commercial operation on or after 1.4.2004, the base operation and maintenance expenses shall be fixed at 1.5% of the actual capital cost as admitted by the Commission, in the year of commissioning and shall be subject to an annual escalation of 4% per annum for the subsequent years."*

54. The petitioner has claimed the following O & M expenses:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
O & M expenses	<b>110.69</b>	<b>7.16</b>	<b>50.25</b>	<b>3832.50</b>

55. It is observed that the petitioner has claimed O & M expenses @ 1.5% of the admitted capital cost as on the date of commercial operation as per the 2004 regulations. However, for the year 2008-09, O & M expenses have been escalated @ 4% for the full year instead of considering pro rata escalation after

completion of one year of date of commercial operation. O & M expenses allowed for calculation of tariff is as under:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
O & M expenses	100.27	6.49	48.13	3642.08

### Interest on Working Capital

56. 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.

57. The 2004 regulations further provides that 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 1<sup>st</sup> April of the year in which the generating stations 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.

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

- (a) **Maintenance Spares:** The petitioner has claimed maintenance spares for calculation of interest on working capital as under:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Maintenance Spares	<b>73.80</b>	<b>4.77</b>	<b>33.50</b>	<b>2555.01</b>

As per the methodology specified in the 2004 regulations, the petitioner has claimed the maintenance spares @ 1% of admitted capital cost on date of commercial operation. However, for the year 2008-09, maintenance spares have been escalated by the petitioner @ 6% for the full year instead of consideration pro rata escalation after one year of date of the commercial operation. Considering the pro-rata escalation during 2008-09, the cost of maintenance spares allowed for the tariff period 2004-09 is as under:

(Rs. in lakh)

	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
O & M expenses	66.85	4.32	32.09	2428.05

(b) **O & M Expenses:** O & M expenses for working capital have been worked out for one month of O & M expenses approved above and are considered in working capital of the respective year in accordance with Regulation 38 (v)(a)(i) of the 2004 regulations.

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

59. The average SBI PLR of 12.25% as on 1<sup>st</sup> April of the year of commercial operation of the generating station as on 1.4.2007 has been considered as the

rate of interest on working capital during the tariff period in accordance with the provisions of Regulation 38(v)(b) of the 2004 regulations.

60. The necessary details in support of calculation of interest on working capital are given below:

(Rs. in lakh)

Particulars	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Maintenance Spares	66.85	4.32	32.09	2428.05
O&M expenses	8.36	0.54	4.01	303.51
Receivables	153.15	10.02	73.21	5516.30
Total Working Capital	228.35	14.88	109.30	8247.86
Rate of interest @ 12.25%	12.25%	12.25%	12.25%	12.25%
<b>Interest on Working capital</b>	<b>27.97</b>	<b>1.82</b>	<b>13.39</b>	<b>1010.36</b>

#### ANNUAL FIXED CHARGES

61. The annual fixed charges for the generating station from the date of commercial operation up to 31.3.2009 allowed in this order are summarized as under:

(Rs. in lakh)

Particulars	2007-08	2008-09		
	Unit-II	Unit-II	Unit-II and III	All Units
	1.3.2008 to 31.3.2008	1.4.2008 to 2.4.2008	3.4.2008 to 9.4.2008	10.4.2008 to 31.3.2009
Depreciation	162.22	10.49	77.87	5892.30
Interest on Loan	194.02	13.20	103.14	7546.15
Return on Equity	434.40	28.10	196.72	15006.89
Advance against depreciation	0.00	0.00	0.00	0.00
Interest on Working Capital	27.97	1.82	13.39	1010.36
O & M Expenses	100.27	6.49	48.13	3642.08
<b>Total</b>	<b>918.89</b>	<b>60.11</b>	<b>439.25</b>	<b>33097.79</b>

62. In addition to the charges approved above, the petitioner is entitled to recover other charges like the claim for reimbursement of income tax, other taxes, cess etc, levied by statutory authorities and other charges, in accordance with the 2004 regulations, as applicable.

63. The petitioner's prayer for reimbursement of filing fee is not allowed in terms of the Commission's order dated 11.9.2008 in Petition No. 129/2005.

64. The petitioner has sought approval for reimbursement of expenditure of Rs. 2,69,629/- incurred on publication of notices in the newspapers. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in two installments in the ratio applicable for sharing of annual fixed charges.

65. The petitioner is already billing the respondents on provisional basis in accordance with the order dated 31.3.2008 in Petition No. 9/2008. The provisional billing of tariff shall be adjusted in the light of the final tariff now approved by us in three equal monthly installments.

66. Petition No. 132/2009 is disposed of in terms of the above.

Sd/-  
**(V.S. VERMA)**  
MEMBER

Sd/-  
**(S. JAYARAMAN)**  
MEMBER

Sd/-  
**(R. KRISHNAMOORTHY)**  
MEMBER