CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

<u>Petition No. 57/2010</u>

Coram
1. Dr. Pramod Deo, Chairperson
2. Shri S.Jayaraman, Member
3. Shri V.S.Verma, Member
4. Shri M.Deena Dayalan, Member

DATE OF HEARING: 18.5.2010 **DATE OF ORDER: 6.9.2010**

IN THE MATTER OF

Approval of generation tariff of SEWA Hydro electric project, Stage-II (3 x 40 MW) located at Kathua, State of J&K, for the period from 1.3.2010 to 31.3.2014.

AND IN THE MATTER OF

NHPC Ltd. **...Petitioner**

Vs

1. Punjab State Electricity Board, Patiala
2. Haryana Power Generation Corporation Ltd, Panchkula
3. BSES-Yamuna Power Ltd, New Delhi
4. Uttar Pradesh Power Corporation Ltd, Lucknow
5. BSES-Rajdhani Power Ltd, New Delhi
6. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
7. North Delhi Power Ltd, Delhi
8. Uttarakhand Power Corporation of Ltd, Dehradun
9. Jaipur Vidyut Vitaran Nigam Ltd, Jaipur
10. Himachal Pradesh State Electricity Board, Shimla
11. Jodhpur Vidyut Vitaran Nigam Ltd, Jodhpur
12. Engineering Deptt. UT Secretariat, Chandigarh
13. Ajmer Vidyut Vitaran Nigam Ltd, Ajmer
14. Power Development Department, Govt of J&K, Jammu ...**Respondents**

The following were present

1. Shri Prashant Kaul, NHPC
2. Shri M.S.Babu, NHPC
3. Shri V.N.Tripathi, NHPC
4. Shri S.Balaji, NHPC
5. Shri Ansuman Ray, NHPC
6. Shri Padamjit Singh, HPPC
7. Shri T.P.S.Bawa, HPPC

ORDER

This petition has been filed by the petitioner, NHPC, for approval of generation tariff of SEWA Hydro electric project, Stage-II (3 x 40 MW) (hereinafter referred to as "the generating station") for the period from 1.3.2010 to 31.3.2014 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009, (hereinafter referred to as "the 2009 regulations"). The petitioner has made the following prayers:

(a) Tariff (annual fixed charges) of Sewa-II HE Project for the period from 1.3.2010 to 31.3.2014 may be determined as per the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2009 and subsequent amendment thereof.

(b) Annual fixed charges for Sewa-II HE Project, for the period 1.3.2010 to 31.3.2014 amounting to Rs.1671.53 lakh, Rs.20117.19 lakh, Rs.20379.29 lakh, Rs.19950.10 lakh and Rs.19565.59 lakh respectively as per the details in tariff filing Form-I, be allowed to be billed for payment by all the respondents in the manner already laid down by the Hon'ble Commission in Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2009 notified on 19.1.2009.

(c) NAPAF of Sewa-II HE project may be considered as 80% in view of submission made in para-19.

(d) During the pendency of this petition, NHPC may be allowed to bill the respondents the AFC as per prayer no. 2, subject to retrospective adjustment after tariff is finally approved by the Commission.

(e) The respondents may be directed to make the payment to the petitioner for the bills raised by the petitioner for supply of power/energy including other charges to them from COD (01.03.2010) onwards from Sewa HE Project Stage II as above and in accordance with the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2009 notified on 19.01.2009.

(f) NHPC may be allowed to bill the respondents for levies, taxes, duties, cess etc., if any, as per Para 13 of the petition.

(g) Incentive and other payables etc. may be allowed to be recovered as prescribed in Commission's notification dated 19.01.2009 and as mentioned in para-15 of the petition.

(h) Filing fee Rs.20400/- for the first part year after COD and thereafter Rs.2.4 lac per annum payable to Hon'ble Commission for this tariff petition, may be allowed to be recovered from the respondents.

(i) The expenditure incurred in publishing of notices for tariff petition may be allowed to be recovered from the respondents as mentioned in Para-16.

(j) Pass such other and further order/orders as are deemed fit and proper in the facts and circumstances of the case.

2. The generating station located at Kathua, in the State of J&K, was designed as a run of the river scheme with small pondage with the net head of 560 metres. The generating station comprises of 3 Units of 40 MW each, with annual design energy of 533.53 MUs. As per the National Tariff Policy, 13% of the energy generated is to be made available to the home state as free power.

Tariff petition

3. Sub-clauses (1) and (2) of Regulation 5 of the 2009 regulations provides as under:

> "*5(1) The generating company or the transmission licensee, as the case may be, may make an application for determination of tariff in accordance with Central Electricity Regulatory Commission (Procedure for making of application for determination of tariff, publication of the application and other related matters) Regulations, 2004, as amended from time to time or any statutory re-enactment thereof, in respect of the units of the generating station or the transmission lines or sub-stations of the transmission system, completed or projected to be completed within six months from the date of application.*
>
> *5 (2) The generating company or the transmission licensee, as the case may be, shall make an application as per Appendix I to these regulations, for determination of tariff based on capital expenditure incurred duly certified by the auditors or projected to be incurred up to the date of commercial operation and additional capital expenditure incurred duly certified by the auditors or projected to be incurred during the tariff period of the generating station or the transmission system:*
>
> *Provided that in case of an existing project, the application shall be based on admitted capital cost including any additional capitalization already admitted up to 31.3.2009 and estimated additional capital expenditure for the respective years of the tariff period 2009-14:*
> *Provided further that application shall contain details of underlying assumptions for projected capital cost and additional capital expenditure, where applicable.*

4. The petitioner has submitted that the present petition has been filed in terms of the above said regulations, for determination of annual fixed charges for the

generating station for the period from 1.3.2010 to 31.3.2014, as the commercial operation of the generating station was expected in the month of March, 2010. Accordingly, the petitioner, in terms of the above regulations has filed the petition based on the actual cost incurred upto 31.12.2009, duly certified by the auditors, the anticipated capital expenditure upto 28.2.2010 and the projected additional capital expenditure for the period of 1.3.2010 to 31.3.2014. This has been considered.

5. Reply to the petition has been filed by respondent Nos. 2 and 4 namely, HPPC and UPPCL.

6. The annual fixed charges claimed by the petitioner for the period 2009-14, is as under:

(₹ in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Depreciation	427.79	5222.18	5410.17	5413.60	5414.87
Interest on Loan	550.11	6389.23	6117.46	5549.64	5022.16
Return on Equity	473.28	5777.47	5985.44	5989.24	5990.65
Interest on Working Capital	39.34	475.13	484.16	479.30	475.56
O&M Expenses	181.01	2253.18	2382.06	2518.31	2662.36
Total	**1671.53**	**20117.19**	**20379.29**	**19950.10**	**19565.59**

Capital Cost as on 1.3.2010

7. Clause (1) of Regulation 7 of the 2009 Regulations, stipulates as under:

"7 (1) Capital cost for a project shall include:

(a) *The expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;*

(b) *Capitalised initial spares subject to the ceiling rates specified in regulation 8; and*

(c) Additional capital expenditure determined under regulation 9:

Provided that the assets forming part of the project, but not in use shall be taken out of the capital cost."

8. The petitioner has filed this petition during February 2010, as the generating station was expected to be under commercial operation during March 2010. However, during the proceedings held on 18.5.2010, the petitioner has submitted that the generating station was expected to be under commercial operation during end May 2010. The original capital cost approved by the Govt. of India, MoP, vide Letter No. 26/1/2002-DO (NHPC) dated 9.9.2003, was ₹ 66545.68 lakh, including IDC of ₹68.42 crore at September, 2002 price level with a debt equity ratio of 70:30. The petitioner has approached the Govt. of India, MoP vide letter no. NH/PD/PC/Sewa II/1233 dated 22.6.2009 for approval of Revised Cost Estimate (RCE) for the generating station amounting to ₹.1018.98 crore, with the expected date of commercial operation as October, 2009 at February, 2009 price level with a debt equity ratio of 70:30.

9. The capital expenditure (projected) up to 28.2.2010 for the generating station is as under:

	Particulars	Amount (₹ in crore)
A	The capital expenditure actually incurred on the project up to 31st December, 2009	984.58
B	Anticipated Expenditure from 1-1-2010 to 28-2-2010	76.85
	Total	**1061.44**

10. Before considering the claim of the petitioner for additional capitalization, we examine the time and cost over-run involved in the project, in the subsequent paragraphs.

(A) Time Overrun

11. The original date of completion of the project as per Govt. of India, approval letter No. 26/1/2002-DO (NHPC) dated 9.9.2003, was four 4 years from the date of approval. Accordingly, the expected date of completion of the project was 9.9.2007. As per the Revised Cost Estimate (RCE) submitted by the petitioner to Govt. of India on 22.6.2009, the expected date of completion was mentioned as October, 2009, which was about 25 months from the original date of completion of the project. However, in the instant petition, the petitioner has considered the commercial operation of the project as 1.3.2010 and the time over-run from the original completion schedule upto 1.3.2010 was 30 months. In addition, the petitioner in its affidavit dated 22.4.2010 has submitted that the anticipated date of commercial operation of the project was 30.5.2010, which works out to a time over-run of about 33 months from the original completion schedule of the project. The details of time over-run are summarized as under:

Particulars	**Period**	**Time over-run (in months)**
(a) Scheduled date of commercial operation as per original approval dated September 2003	September 2007	-
(b) Revised scheduled date of commercial operation, as per revised RCE submitted to PIB in February 2009	October 2009	25
(c) As on 1.3.2010	-	30
(d) As on 31.5.2010	-	33

12. Since the petitioner in this petition has claimed tariff based on the capital cost as on 1.3.2010, the time over-run up to 1.3.2010 has been considered for the purpose of tariff.

13. The major reasons for time over-run submitted by the petitioner, is summarized as under:

(a) Agitation by local people and miscreants; all India / State level labor strikes; state-wide agitation by the Amarnath yatra shrine board sangharsh samiti.

(b) Non-handing over of access roads by the State Government immediately after award of work; non-availability of the access roads to the down side of concrete dam due to steep hills.

(c) **Geological surprises**:

(i) Cavity / chimney formation due to encountering of shear zone / weak rocks along with heavy seepage.

(ii) De-routing of tunnel alignment and additional provisioning of reinforcement and RCC lining inside the HRT due to low cover zone / bad geological conditions.

(iii) Heavy water ingress and encountering of weak rock mass i.e. poor geology at face-6 & face-7.

(iv) A very weak rock stratum was encountered in the entire surface penstock area especially in S-93, S-94, S103, S-104 & AB-11 which required revision in design & drawing taking more time for completion than envisaged earlier.

(d) **Natural calamities**

(i) Sliding away / blockade of approach roads to Adit resulting in complete stoppage of work/ retarded progress.

(ii) Washing away of coffer dams due to unprecedented high intensity floods in Sewa River.

(iii) Blockage of approaches due to landslides/ rock slides.

(iv) Continuous seepage of water inside pressure shaft.

(e) Delay in obtaining forest clearance

(B) Cost Over-run

14. The original project cost approved by the Govt. of India as per letter No. 26/1/2002-DO (NHPC) dated 9.9.2003 was ₹.665.46 crore, including IDC of ₹.68.42 crore at September, 2002 price level with a debt equity ratio of 70:30. As per RCE submitted to the Govt. of India, the project cost, as on the expected date of commercial operation was October, 2009, and the anticipated expenditure was ₹.1018.98 crore at February, 2009 price level. The anticipated expenditure as on 1-3-2010, as submitted in the petition, was ₹.1061.44 crore. Hence the total cost overrun up to 1.3.2010 was ₹.395.98 crore. This works out to about 59.5% over the original approved cost. However, the petitioner has submitted that the actual project cost as on the date of commercial operation would be known only after declaration of commercial operation of the generating station and the closure of accounts thereafter.

15. The major reasons for cost overrun, submitted by the petitioner, is summarized as under:

(a) Inadequate/over provision
(b) Change in scope
(c) Change in design
(d) Price escalation
(e) New Items
(f) Change in statutory duties

16. Based on the above, the summary of time and cost overrun up to 1.3.2010 is as under:

Sl. NO.	Particulars	Original Approval CCEA Sanctioned Cost (Sep'2002 PL) (A)	Submitted RCE for Approval (Feb'2009 PL) (B)	Difference(A-B)		As on 1-3-2010 (C)	Difference (C-B)		Difference (C-A)	
				Month/ Amount (₹ in crore)	(%)		Month/ Amount (₹ in crore)	(%)	Month/ Amount (₹ in crore)	(%)
(a)	Hard Cost	597.04	892.38	295.35	49.47%	932.63	40.25	4.51%	335.59	56.21%
(b)	IDC & FC	68.42	126.60	58.18	85.04%	128.81	2.21	1.74%	60.39	88.26%
(c)	Total	**665.46**	**1018.99**	**353.53**	**53.13%**	**1061.44**	**42.45**	**4.17%**	**395.98**	**59.50%**

17. The element-wise detailed capital cost as per the original approved cost estimate and the revised cost estimate submitted to the Govt. of India for approval is as under:

(₹ in crore)

		Original approved (CCEA sanctioned) cost (at Sep'2002 Price level)	RCE submitted for approval (at Feb'2009 Price level)	Difference	
				Amount	%
A	**CIVIL WORKS**				
1	**DIRECT CHARGES**				
I	**Works**				
A	Preliminary	681.99	492.45	(-) 189.54	(-) 27.79%
B	Land	514.06	1294.99	780.93	151.91%
C	Works	10122.85	14281.82	4158.97	41.08%
J	Power Plant Civil Works	21809.48	24814.57	3005.08	13.78%
K	Buildings	1593.05	2511.45	918.40	57.65%
O	Miscellaneous	2088.07	3753.17	1665.10	79.74%
P	Maintenance	366.00	689.75	323.75	88.46%
Q	Special Tools and Plants	2421.15	1200.59	(-) 1220.56	(-) 50.41%
R	Communication	3059.72	3561.91	502.19	16.41%
X	Environment & Ecology	1198.88	1099.69	(-) 99.19	(-) 8.27%
Y	Losses on Stock	91.00	172.44	81.44	89.50%
	TOTAL OF (I)- WORKS	**43946.25**	**53872.84**	**9926.58**	**22.59%**
II	Establishment	4636.00	12118.86	7482.86	161.41%
III	Tools and Plants	408.00	443.41	35.41	8.68%
IV	Suspense				
V	Receipt and Recoveries	(-) 1546.00	(-) 30.60	1515.40	(-) 98.02%
	Total Direct charges	**47444.25**	**66404.51**	**18960.25**	**39.96%**

2	**Indirect charges**				
I	Capitalized value of Abatement of Land Revenue(5% of Cost of Abatement of Land)				
II	Audit and Accounts charges	408.00	719.00	311.00	76.23%
	Total indirect charges	**408.00**	**719.00**	**311.00**	76.23%
	Total civil cost	**47852.25**	**67123.51**	**19271.25**	**40.27%**
B	Electrical charges	11851.64	22114.89	10263.25	86.60%
C	**Total Net cost without IDC**	**59703.89**	**89238.40**	**29534.50**	**49.47%**
D	Interest During Construction (IDC)	6842.00	12660.11	5818.11	85.04%
E	**Total Net cost with IDC**	**66545.89**	**101898.51**	**35352.61**	**53.13%**

18. The petitioner has also submitted that the 2009 regulations specified by the Commission do not mandate the submission of RCE. However, the Revised Cost Estimate submitted by the petitioner is yet to be approved by Govt. of India.

19. The capital cost of project was ₹. 59704 lakh at September 2002 price level as per original approval. The petitioner, in the petition has claimed a capital cost of ₹. 93263 lakh (Total cost of the project ₹.106144 lakh, including IDC and finance charges). Thus there is an increase of ₹. 33559 lakh in the total capital cost of the project. The break-up details are as under:

Particulars	**Amount (₹ in lakh)**
Inflation on price including increase in material supply due to change in scope and time over run.	15373
Increase in establishment cost due to time over run & pay revision.(Less decrease in pre -commissioning expenses and insurance)	9782
Change in scope / additional scope including design change	8404
TOTAL	**33559**

20. There is escalation of price in the different packages due to increase in award cost and increase in cost of material (Lot SW-1 to Lot-SW-4) to the order of ₹. 14066 lakh upto December, 2009 (actual). The tentative escalation of price for two months (from January 2010 to February 2010) worked out by the petitioner as ₹. 1308 lakh, appears to be on higher side considering the fact that 80% of the payment had been made. On this consideration, the escalation for two months work out to about ₹ 2 crore. In addition, the increase of ₹. 14066 lakh includes on amount of ₹. 6766 lakh on account of the escalation in cost of different packages in the bidding based on price of lowest bidder finalized during September/October 2003. This increase in cost was beyond the control of the petitioner. The balance escalation of ₹. 7300 lakh which had occurred since September 2003 up to 1.3.2010 (i.e for 6.1/2 years) works out to about 2% of the cost of project of ₹. 65470 lakh in September/October 2003 and is in order. Therefore, the total increase due to escalation of price has been considered as **₹.** 14273 lakh. (₹.15373 lakh - ₹. 1100 lakh)

21. The increase of ₹. 9782 lakh in establishment cost is on account of time over-run and due to the increase in the salary and wages of the employees. Under the provisions of Regulation 19(f), the Commission has further rationalized the O&M expenses for the year 2009-10 by considering 50% increase in employee cost on account of pay revision to arrive at the permissible O&M expenses for the year 2009-10 and as per Regulation 19(f)(iii), the O&M expenses for 2009-10 shall be further escalated at the rate of 5.72% per annum to arrive at the permissible O&M expenses for the subsequent tariff period. In consideration of the above, the increase in establishment cost has been allowed and considered for the purpose

of tariff.

22. In addition to the price escalation of different packages and the increase in establishment cost as stated above, further escalation of ₹.8404 lakh was attributable to the change in scope/additional scope on account of the design changes and the consequential increase in taxes & duties. The following are the changes in scope/additional scope due to design changes, submitted by the petitioner.

(a) Increase in division tunnel length from 280m to 295m
(b) Washing away of coffer dam twice
(c) Re-routing of HRT in two faces after encountering shear zones and due to extremely poor rock strata.

23. An increase of ₹.1805 lakh was on account of increase in taxes & duties, which has been allowed.

24. Accordingly, the capital cost of the project worked out is as under:

	Particulars	Amount (₹. in lakh)
A	Capital cost	93263
B	**Less**: Anticipated price escalation from 1-1-2010 to 28-2-2010	1308
	Total	**91955**
C	**Add**: Anticipated price escalation allowed for the period from 1-1-2010 to 28-2-2010	200
D	**Capital cost of the project as on 1.3.2010**	**92155**

Interest During Construction (IDC) and Finance Charges

25. The petitioner has claimed an amount of ₹.12880.95 lakh on account of interest during construction and finance charges, as on 1.3.2010 which is allowed.

Un-discharged Liability

26. The petitioner has submitted that the total un-discharged liability as on the anticipated date of commercial operation (i.e 1.3.2010) was ₹.6674.59 lakh.

27. Accordingly the capital cost considered for the purpose of tariff as on 1.3.2010, is as under:

(₹. in lakh)

Particulars	Amount
Capital Cost excluding IDC and FC	92155.00
Add: IDC and FC	12880.95
Total Capital Cost	105035.95
Less: Undischarged liability as on the anticipated date of commercial operation(1.3.2010)	6674.59
Capital Cost allowed for the purpose of tariff as on anticipated date of commercial operation (**1.3.2010**)	**98361.36**

Additional Capital Expenditure (Projected)

28. Regulation 9 of the 2009 regulations provides as under:

"9. *Additional Capitalization. (1) The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:*

(i) Undischarged liabilities;

(ii) Works deferred for execution;

(iii) Procurement of initial capital spares within the original scope of work, subject to the provisions of regulation 8;

(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and

(v) Change in law:

Provided that the details of works included in the original scope of work along with estimates of expenditure, undischarged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

(2) The capital expenditure incurred on the following counts after the cut-off date may, in its discretion, be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court;

(ii) Change in law;

(iii) Deferred works relating to ash pond or ash handling system in the original scope of work;

(iv) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to

flooding of power house attributable to the negligence of the generating company) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation; and

(v) In case of transmission system any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement of switchyard equipment due to increase of fault level, emergency restoration system, insulators cleaning infrastructure, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system:

Provided that in respect sub-clauses (iv) and (v) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2009.

29. The category-wise breakup details of the projected additional capital expenditure as claimed by the petitioner during 2009-14 is as under:

(₹ in lakh)

Name of Work	2010-11	2011-12	2012-13	2013-14
Works deferred for execution-**Regulation 9(1)(ii)**	713.00	0.00	0.00	0.00
Any expenditure which has become necessary on account of damage caused by natural calamities and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation -**Regulation 9(2)(iv)**	0.00	38.00	30.00	20.00
Total addition	**713.00**	**38.00**	**30.00**	**20.00**
Less: De-capitalization of assets not in use--Proviso to Regulation 7(1)	0.42	0.43	0.00	0.00
Total Additional capitalization claimed	**712.58**	**37.57**	**30.00**	**20.00**

Works deferred for execution-Regulation 9 (1)(ii)

30. The petitioner has claimed an amount of ₹.713.00 lakh during the year 2010-11 under this head, in respect of assets like building, roads and bridges, water supply & sewerage system and other assets. The claim is in order and hence allowed.

Any expenditure which has become necessary on account of damage caused by natural calamities and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation- Regulation 9(2)(iv)

31. The petitioner has claimed an amount of ₹.38.00 lakh, ₹.30.00 lakh and ₹.20.00 lakh during the years 2011-12, 2012-13 and 2013-14 respectively, under this head in respect of assets like P & M sub-station, vehicles, GPM, main generating equipment, miscellaneous power plant equipment and computers. The claim is in order and hence allowed.

De-capitalization of assets not in use-Proviso to Regulation 7(1)

32. Regulation 7(1) of the 2009 regulations provide as under:

> *"7 (1) Capital cost for a project shall include:*
> *(a)xxxx*
>
> *(b)xxxx*
>
> *(c)xxxx*
>
> *Provided that the assets forming part of the project, but not in use shall be taken out of the capital cost."*

33. The petitioner has de-capitalized an amount of ₹.0.42 lakh and ₹.0.43 lakh during 2010-11 and 2011-12 respectively towards the gross value of original assets in respect of replaced assets under this head. The de-capitalization is in order and hence allowed.

34. Based on the above, the additional capital expenditure allowed before adjustment of un-discharged liabilities, is as under:

(₹. in lakh)

	2010-11	2011-12	2012-13	2013-14
Works deferred for execution- **Regulation 9(1)(ii)**	713.00	0.00	0.00	0.00
Any expenditure which has become necessary on account of damage caused by natural calamities and expenditure incurred due to any additional work which has	0.00	38.00	30.00	20.00

become necessary for successful and efficient plant operation -**Regulation 9(2)(iv)**				
Total addition	**713.00**	**38.00**	**30.00**	**20.00**
Less: De-capitalization of assets not in use--Proviso to Regulation 7(1)	0.42	0.43	0.00	0.00
Total Additional capitalization allowed	**712.58**	**37.57**	**30.00**	**20.00**

Undischarged liabilities

35. The petitioner has submitted that there is an un-discharged liability of ₹. 6674.59 lakh as on the date of commercial operation (1.3.2010), which would be discharged during the year 2010-11. Similarly, there is un-discharged liability of ₹ 68.10 lakh during the year 2010-11 relating to additional capitalization, which would be discharged during the year 2011-12.

36. In view of the above, the additional capital expenditure allowed after adjustment of un-discharged liabilities, is as under:

(₹. in lakh)

	2010-11	**2011-12**	**2012-13**	**2013-14**
Additional capital expenditure allowed (prior to adjustment of un-discharged liabilities)	712.58	37.57	30.00	20.00
Less: Un-discharged liabilities during the year	68.10	0.00	0.00	0.00
Add: Liabilities discharged during the year	0.00	68.10	0.00	0.00
Add: Liabilities discharged during the year (related to un-discharged liability as on the date of commercial operation)	6674.59	0.00	0.00	0.00
Additional Capital expenditure allowed for the purpose of tariff	**7319.07**	**105.67**	**30.00**	**20.00**

Initial spares

37. Regulation 8 of the 2009 regulations provides as under:

"8. Initial Spares: Initial spares shall be capitalised as a percentage of the original project cost, subject to following ceiling norms:
(i) xxxx
(ii)xxxx.

(iii) Hydro generating stations - 1.5%

(iv)xxxx

Provided that where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost under first proviso to clause (2) of regulation 7, such norms shall apply to the exclusion of the norms specified herein.

38. The petitioner has claimed initial spares amounting to ₹.1473 lakh as part of capital expenditure upto the date of commercial operation of the generating station. In terms of the above regulation, the admitted capital expenditure includes initial spares, subject to a ceiling of 1.5% of the original project cost as on the cut-off date. The claim of the petitioner is within the permissible limit of 1.5% of the original project cost as on the cut off date i.e. 31.3.2012. Hence the claim is allowed.

39. Based on the above discussions, the capital cost considered for the purpose of tariff for the period 2009-14, is as under:

(₹ in lakh)

Year	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Opening Capital Cost as on 1.3.2010	98361.36	98361.36	105680.43	105786.09	105816.09
Additional Capitalization allowed	0.00	7319.07	105.67	30.00	20.00
Capital Cost as on 31.3.2010	**98361.36**	**105680.43**	**105786.09**	**105816.09**	**105836.09**

Debt Equity

40. Regulation 12 of the 2009 regulations provides that*:*

"(1) For a project declared under commercial operation on or after 1.4.2009, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff.

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.

Explanation.- The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, provided such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2) In case of the generating station and the transmission system declared under commercial operation prior to 1.4.2009, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 shall be considered.

(3) Any expenditure incurred or projected to be incurred on or after 1.4.2009 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

41. The original project cost, approved by the Govt. of India, vide its Letter No. 26/1/2002-DO(NHPC) dated 9.9.2003, was ₹.66545.68 lakh including IDC of ₹.68.42 crore at September, 2002 price level with a debt equity ratio of 70:30. The petitioner, in Form-6 of the petition has indicated the financing pattern as on the date of commercial operation, as under:

Particulars	**Amount (₹in lakh)**
Debt	
LIC	13600.00
PFC	38202.50
Normative Loan	17825.00
Total Loan	**69627.50**
Equity	
Domestic	19964.00
IPO/IR	9877.00
Total Equity	**29841.00**
Debt-Equity ratio	70:30

42. The equity invested as on the anticipated date of commercial operation is 30%. The petitioner has considered the internal resources invested as normative loan and equity in a manner that the debt-equity ratio of 70:30 is maintained. The pattern of the actual capital deployed by the petitioner is as under:

(₹. in lakh)

					Equity		
	LIC	PFC	Total Debt	Debt (%)	Equity	Equity (%)	Total capital employed
2001-02	0.00	0.00	0.00	0.00%	2107.00	100.00%	2107.00
2002-03	0.00	0.00	0.00	0.00%	4492.00	100.00%	4492.00
2003-04	0.00	0.00	0.00	0.00%	10676.00	100.00%	10676.00
2004-05	1100.00	0.00	1100.00	5.22%	19964.00	94.78%	21064.00
2005-06	9600.00	0.00	9600.00	32.47%	19964.00	67.53%	29564.00
2006-07	13600.00	0.00	13600.00	40.52%	19964.00	59.48%	33564.00
2007-08	13600.00	26000.00	39600.00	66.48%	19964.00	33.52%	59564.00
2008-09	13600.00	41300.00	54900.00	73.33%	19964.00	26.67%	74864.00
2009-10	13600.00	38202.50	51802.50	72.18%	19964.00	27.82%	71766.50

43. As stated above, the total capital employed as on 28.2.2010, was ₹.99469.06 lakh. Thus, an amount of ₹.27702.56 lakh (₹.99469.06 lakh - ₹.71766.50 lakh) has been financed from internal resources. If these internal resources are considered as equity, then the debt-equity ratio as on 28.2.2010 would be 52.08:47.92. Accordingly, debt-equity ratio of 70:30 has been considered for the purpose of tariff, as on 1.3.2010, as tabulated hereunder:

(₹. in lakh)

Particulars	Amount
Debt	68852.95
Equity	29508.41
Total	98361.36

Return on Equity

44. Regulation 15 of the 2009 regulations provides that:

"(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 12.

(2) Return on equity shall be computed on pre-tax basis at the base rate of 15.5% to be grossed up as per clause (3) of this regulation.

Provided that in case of projects commissioned on or after 1st April, 2009, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified in Appendix-II.

Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever.

(3) The rate of return on equity shall be computed by grossing up the base rate with the normal tax rate for the year 2008-09 applicable to the concerned generating company or the transmission licensee, as the case may be.

Provided that return on equity with respect to the actual tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up separately for each year of the tariff period along with the tariff petition filed for the next tariff period.

(4) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where t is the applicable tax rate in accordance with clause (3) of this regulation.

45. The petitioner has considered Return on Equity @ 18.674%, based on prevailing MAT rate of 16.995% (Basic rate of 15%+10% surcharge+3% education cess) for 2009-10.

46. In terms of the provisions of the above regulations, Return on equity has been worked out @17.481% per annum on the normative equity after accounting for the additional capital expenditure, considering the base rate of 15.5% and MAT rate of 11.33%. Return on equity has been worked out as under:

(₹in lakh)

Return on Equity	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Gross Notional Equity	-	-	2,195.72	2,227.42	2,236.42
Addition due to Additional Capitalization	-	2,195.72	31.70	9.00	6.00
Closing Equity	-	2,195.72	2,227.42	2,236.42	2,242.42
Average Equity	-	1,097.86	2,211.57	2,231.92	2,239.42
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax rate for the year 2008-09 (MAT)	11.330%	11.330%	11.330%	11.330%	11.330%
Rate of Return on Equity (Pre Tax)	17.481%	17.481%	17.481%	17.481%	17.481%
Return on Equity (Pre Tax) - *Annualised*	**-**	**191.91**	**386.59**	**390.15**	**391.46**

47. Any change in rate of return on equity due to changes in the tax rate would however be considered at the time of truing up.

Interest on loan

48. Regulation 16 of the 2009 regulations provides as under:

> *"(1) The loans arrived at in the manner indicated in regulation 12 shall be considered as gross normative loan for calculation of interest on loan.*
>
> *(2) The normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan.*
>
> *(3) The repayment for the year of the tariff period 2009-14 shall be deemed to be equal to the depreciation allowed for that year.*
>
> *(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed.*
>
> *(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project.*
>
> *Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered.*
>
> *Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.*
>
> *(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*
>
> *(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.*
>
> *(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.*
>
> *(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute.*

Provided that the beneficiary or the transmission customers shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.

49. The interest on loan has been computed as under:

(a) The opening gross normative loan as on date of commercial operation of each unit has been computed in terms of the above regulations.

(b) The weighted average rate of interest has been worked out on the basis of the actual loan portfolio of respective year applicable to the project.

(c) The repayment of loan for the period 2009-14 has been considered equal to the depreciation allowed for that year.

(d) The interest on loan has been calculated on the normative average loan for the year by applying the weighted average rate of interest.

50. The computation of interest on loan by applying weighted average interest rate is appended herein below:

(₹ in lakh)

Interest on Loan	**2009-10 (1.3.2010 to 31.3.2010)**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Gross Normative Loan	0.00	0.00	5123.35	5197.31	5218.31
Cumulative Repayment upto previous year	0.00	0.00	185.31	558.61	935.34
Net Loan-Opening	0.00	0.00	4938.04	4638.71	4282.98
Repayment during the year	0.00	185.31	373.30	376.73	378.00
Addition due to Additional Capitalization(2009-14)	0.00	5123.35	73.97	21.00	14.00
Net Loan-Closing	0.00	4938.04	4638.71	4282.98	3918.98
Average Loan	0.00	2469.02	4788.37	4460.84	4100.98
Weighted Average Rate of Interest on Loan	9.51%	9.24%	9.21%	9.09%	9.02%
Interest on loan	**-**	**228.13**	**440.93**	**405.38**	**369.95**

Depreciation

51. Regulation 17 of the 2009 regulations provides that*:*

"(1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.

(2) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

Provided that in case of hydro generating stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site.

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciable value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff.

(3) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

(4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-III to these regulations for the assets of the generating station and transmission system.

Provided that, the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the assets.

(5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting 3[the cumulative depreciation including Advance against Depreciation] as admitted by the Commission upto 31.3.2009 from the gross depreciable value of the assets.

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

52. In terms of the above, depreciation has been calculated considering the weighted average rate of depreciation of 5.064% during the respective years of the tariff period. Accordingly, depreciation has been worked out as under:

(₹ in lakh)

Depreciation	**2009-10 (1.3.2010 to 31.3.2010)**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Gross Block as on the date of commercial operation	86221.52	86221.52	86221.52	86221.52	86221.52
Additional capital	0.00	0.00	0.00	0.00	0.00

expenditure during 2009-14					
Cost of Initial Spares Adjustment	0.00	0.00	0.00	0.00	0.00
Closing gross block	86221.52	86221.52	86221.52	86221.52	86221.52
Average gross block	86221.52	86221.52	86221.52	86221.52	86221.52
Rate of Depreciation	5.0638%	5.0638%	5.0638%	5.0638%	5.0638%
Depreciable Value @ 90%	0.00	3293.58	6634.71	6695.76	6718.26
Balance Useful life of the asset as on 1st April	-	-	-	-	-
Remaining Depreciable Value	0.00	3293.58	6449.40	6137.16	5782.93
Depreciation	**0.00**	**185.31**	**373.30**	**376.73**	**378.00**

O&M Expenses

53. Sub-clause (v) of Clause (f) of Regulation 19 of the 2009 regulations provides for normative operation and maintenance expenses for hydro generating stations as under:

> *"(v) In case of the hydro generating stations declared under commercial operation on or after 1.4.2009, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works) and shall be subject to annual escalation of 5.72% per annum for the subsequent years."*

54. The O&M expenses claimed by the petitioner are as under:

(₹ in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
O&M expenses	181.01	2253.18	2382.06	2518.31	2662.36

55. However, in terms of the provisions of the above regulations, the O & M expenses work out as under:

(₹ in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
O&M expenses	167.08	2079.75	2198.71	2324.48	2457.44

Interest on Working Capital

56. In accordance with sub-clause (c) of clause (1) of Regulation 18 of the 2009 regulations, working capital in case of hydro generating stations shall cover**:**

(i) Receivables equivalent to two months of fixed cost;

(ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 19;

(iii) Operation and maintenance expenses for one month.

57. Clauses (3) and (4) of Regulation 18 of the 2009 regulations, the rate of interest on working capital shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1st April of the year in which the generating station or a unit thereof is declared under commercial operation, whichever is later. Interest on working capital shall be payable on normative basis notwithstanding that the generating company has not taken working capital loan from any outside agency.

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

(a) **Receivables**: In terms of the provisions of the above regulations, receivables equivalent to two months of fixed cost, considered for the purpose of tariff, is as under:

(₹ in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Receivables	**268.30**	**3228.59**	**3269.20**	**3196.80**	**3131.69**

(b) **Maintenance Spares:** In terms of the provisions of the above regulations Maintenance spares considered for the purpose of tariff, is as under:

(Rs in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	**25.06**	**311.96**	**329.81**	**348.67**	**368.62**

(C) O&M Expenses: In terms of the provisions of the above regulations Operation and maintenance expenses for one month considered for the purpose of tariff, is as under:

(₹ in lakh)

Particulars	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Operation & Maintenance expenses (I month)	**13.92**	**173.31**	**183.23**	**193.71**	**204.79**

59. In terms of Clauses (3) and (4) of Regulation 18 of the 2009 regulations, the SBI PLR as on 1st April.2009 was 12.25%. This has been considered by the petitioner. The same has been considered in the calculations, for the purpose of tariff.

60. Necessary computations in support of calculation of interest on working capital is as under:

(₹ in lakh)

Interest on Working Capital	2009-10 (1.3.2010 to 31.3.2010)	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	25.06	311.96	329.81	348.67	368.62
O & M expenses	13.92	173.31	183.23	193.71	204.79
Receivables	268.30	3228.59	3269.20	3196.80	3131.69
Total	307.29	3713.87	3782.23	3739.17	3705.09
Interest on working capital	**37.64**	**454.95**	**463.32**	**458.05**	**453.87**

Normative Annual Plant Availability Factor (NAPAF)

61. The NAPAF considered for the generating station for the period from 1.3.2010 to 31.3.2014 is 80% based on the sedimentation study, silt data collected during the period from August 2003 to September 2009, petrographic analysis of the water

sample, limited pondage as recommended by M/s BHEL and after considering the past performance of the adjoining generating stations of the petitioner (viz, Chamera-II and Bairasiul),

Annual fixed charges

62. The annual fixed charges, approved in respect of the generating station for the period from 1.3.2010 to 31.3.2014 is as under:

(₹ in lakh)

Particulars	**2009-10 (1.3.2010 to 31.3.2010)**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Return on Equity	438.10	5350.14	5544.83	5548.38	5549.69
Interest on Loan	543.99	6320.62	6054.25	5492.35	4970.35
Depreciation	423.03	5166.09	5354.08	5357.51	5358.78
Interest on Working Capital	37.64	454.95	463.32	458.05	453.87
O & M Expenses	167.08	2079.75	2198.71	2324.48	2457.44
Total	**1609.83**	**19371.55**	**19615.19**	**19180.77**	**18790.14**

63. The petitioner shall be entitled to compute and recover the annual fixed charges and energy charges in accordance with Regulation 22 of the 2009 regulations.

Free energy to home State

64. Note 3 under Regulation 32 of the 2009 regulations, provides as under**:**

> ***"FEHS = Free energy for home State, in percent and shall be taken as 12%***
>
> *Provided that in cases where the site of a hydro project is awarded to a developer (not being a State controlled or owned company), by a State Government by following a two stage transparent process of bidding, the 'free energy' shall be taken as 13%, which shall also include energy corresponding to 100 units of electricity to be provided free of cost every month to every project affected family for a period of 10 years from the date of commercial operation of the generating station."*

65. As per Govt. of India, letter No. 2/5/2009-NHPC dated 12.3.2010, the free power allotted to the home state of Jammu & Kashmir is 13%. However, in terms of

the above, FEHS of 12% only has been considered for the purpose of tariff.

66. Regulation 6 of the 2009 regulation provides as under:

> *"6. Truing up of Capital Expenditure and Tariff.*
>
> *(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2014, as admitted by the Commission after prudence check at the time of truing up.*
>
> *Provided that the generating company or the transmission licensee, as the case may be, may in its discretion make an application before the Commission one more time prior to 2013- 14 for revision of tariff."*

67. It is observed that the generating station has been declared under commercial operation on 24.7.2010 with the COD of Unit –II . The Units I &II of the generating station have been declared under commercial operation on 29.6.2010 and 2.7.2010 respectively. As stated earlier, the RCE in respect of the generating station has not yet been approved by the Govt. of India. In view of this, the petitioner is at liberty to approach the Commission for revision of tariff based on the approved RCE, in terms of the above said regulation. Since the petitioner has claimed tariff based on the capital cost as on 1.3.2010, the tariff for the generating station is based on the capital cost as on 1.3.2010 after prudence check. However, the tariff shall be applicable from the date of commercial operation of the respective units of the generating station, i.e from the year 2010-11. Any over/under recovery of the annual fixed charges shall be subject to truing up, in terms of the provisions contained in Regulation 6 of the 2009 regulations.

Design Energy

68. The month-wise details of design energy in respect of the generating station is indicated in the following table:

Month	Design Energy (MU)
April	55.93
May	39.01
June	81.92
July	76.69
August	84.82
September	40.90
October	21.36
November	14.66
December	11.70
January	9.72
February	22.61
March	74.21
Total	**533.53**

69. Monthly energy charges shall be computed in terms of the provisions contained in Regulation 22 of the 2009 regulations.

Application fee and the publication expenses

70. The petitioner has sought approval for the reimbursement of fee paid by it for filing the petition and for the expenses incurred for publication of notices in connection with the petition. However, the details of the actual expenditure incurred for publication of notice in the newspapers, has not been submitted by the petitioner.

71. Regulation 42 of the 2009 regulations provides as under:

> *"The application filing fee and the expenses incurred on publication of notices in the application for approval of tariff, may in the discretion of the Commission, be allowed to be recovered by the generating company or the transmission licensee, as the case may be, directly from the beneficiaries or the transmission customers, as the case may be."*

72. The Commission in its order dated 11.1.2010 in Petition No.109/2009 (pertaining to approval of tariff for SUGEN power plant for the period from DOCO to 31.3.2014) had decided that filing fees in respect of main petitions for

determination of tariff and the expenses on publication of notices are to be reimbursed.

73. Accordingly, the expenses incurred by the petitioner on application filing fees totaling ₹. 2,60,400/- (for the years 2009-10 and 2010-11) and for publication of notices in connection with the present petition, on production of proof, shall be directly recovered from the beneficiaries, on pro rata basis.

74. Petition No.57/2010 is disposed of in terms of the above.

Sd/-	Sd/-	Sd/-	Sd/-
(M. DEENA DAYALAN)	**(V.S.VERMA)**	**(S.JAYARAMAN)**	**(DR.PRAMOD DEO)**
MEMBER	**MEMBER**	**MEMBER**	**CHAIRPERSON**