CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 281/GT/2018

Coram:
Shri P.K.Pujari, Chairperson
Dr. M.K. Iyer, Member
Shri I.S.Jha, Member

Date of Order: 5th February, 2020

In the matter of

Revision of tariff of Sewa-II Power Station (120 MW) after truing-up of the capital expenditure incurred for the period from 29.6.2010 to 31.3.2014

And

In the matter of

NHPC Ltd
NHPC Office Complex,
Sector-33, Faridabad
Haryana-121003 .. **Petitioner**

Vs

1. Punjab State Power Corporation Ltd.
The Mall, Near Kali Badi Mandir,
Patiala – 147001

2. (a) Dakshin Haryana Bijili Vitaran Nigam Ltd.
(b) Uttar Haryana Bijili Vitaran Nigam Ltd
Shakti Bhawan, Sector-6,
Panchkula - 134109

3. Uttar Pradesh Power Corporation Ltd.
Shakti Bhavan, 14, Ashok Marg,
Lucknow – 226001

4. Engineering Department
UT Secretariat, Sector 9D
Chandigarh-160009

5. BSES-Rajdhani Power Ltd.
BSES Bhawan, Nehru Place,
New Delhi – 110019

6. BSES-Yamuna Power Ltd.
Shakti Kiran Building,
Karkardooma, Delhi-110072

7. Tata Power Delhi Distribution Ltd.
Hudson Lane, Kingsway Camp,
New Delhi-110009

8. Uttaranchal Power Corporation Ltd.
Urja Bhawan, Kanwali Road,
Dehradun-248001

9. Jaipur Vidyut Vitaran Nigam Ltd.
Vidut Bhavan, Janpath, Jyoti Nagar,
Jaipur-302005

10. Jodhpur Vidyut Vitaran Nigam Ltd.
New Power House, Industrial Area,
Jodhpur-342003

11. Ajmer Vidyut Vitaran Nigam Ltd.
Old Power House, Hatthi Bhatta,
Jaipur Road, Ajmer-305001

12. Power Development Department
Government of J&K, New secretariat,
Jammu-180001 **... Respondents**

Parties Present:

Shri Rajiv Shankar Dwivedi, Advocate, NHPC
Shri Piyush Kumar, NHPC
Shri M.G.Gokhale, NHPC
Shri V.N.Tripathi, NHPC
Shri Dhanush C.K, NHPC
Shri R.B.Sharma, Advocate, BRPL & BYPL
Shri Mohit K. Mudgal, Advocate, BRPL & BYPL
Ms. Sanya Sood, Advocate, BRPL & BYPL
Shri Sanjay Srivastava, BRPL

ORDER

The Petitioner, NHPC Ltd has filed this petition for revision of tariff of Sewa-II Hydroelectric Project (3 x 40 MW) ('hereinafter referred to as 'the generating station') for the period from 29.6.2010 to 31.3.2014, after truing-up in terms of Regulation 6 (1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 ("the 2009 Tariff Regulations")

Background

2. The generating station located at Kathua, in the State of J&K, has been designed as a run of the river scheme with small pondage with the net head of 560 metres. The generating station comprises of three units of 40 MW each, with annual design energy of 533.53 MUs. As per National Tariff Policy, 13% of the energy generated is to be made available to the home state as free power. 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. The original project cost approved by the Govt. of India as per letter No. 26/1/2002-DO (NHPC) dated 9.9.2003 was ₹66546 lakh, including IDC of ₹6842 lakh at September, 2002 price level with a debt equity ratio of 70:30. As per the Revised Cost Estimate (RCE) submitted to the Govt. of India, the expected date of commercial operation was October 2009, and the anticipated expenditure was ₹101898 lakh at February, 2009 price level.

3. Petition No. 57/2010 was filed by the Petitioner for determination of annual fixed charges for the generating station for the period from the anticipated COD (1.3.2010) till 31.3.2014 in terms of the 2009 Tariff Regulations and 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. The Commission by its order dated 6.9.2010 in Petition No. 57/2010 determined the annual fixed charges of the generating station for the period from 1.3.2010 to 31.3.2014 based on the capital cost of ₹98361.36 lakh (including IDC & FC but excluding un-discharged liability of ₹6674.59 lakh) as on 1.3.2010. Subsequently, the date of commercial operation of the units are as under:

Unit	COD
I	29.6.2010
III	2.7.2010
II(Station)	24.7.2010

4. Thereafter, the Commission by *suo motu* order dated 22.9.2010 rectified certain clerical errors in order dated 6.9.2010, without any impact/ revision of the annual fixed charges allowed. However, the annual fixed charges approved, was subject to revision based on truing-up exercise in terms of Regulation 6 of the 2009 Tariff Regulations and submission of approved RCE. Subsequently, the Petitioner filed Petition No. 251/GT/2014 for truing-up of the capital cost as on COD of the units/generating station for the period from 29.6.2010 to 31.3.2014 and for determination of tariff for the period 2014-19. However, the Commission vide its order dated 27.1.2017 disposed of the said petition granting liberty to the Petitioner to approach the Commission after approval of RCE by the Central Government. The Commission had also in the said order, directed that the annual fixed charges determined by order dated 6.9.2010 in Petition No.57/2010 shall however continue to be in operation till the tariff of the generating station for the periods 2009-14 and 2014-19 are determined based on the approved RCE. The relevant portion of the order is extracted hereunder:

> *"10. Hence, in line with the above decision, we are inclined to dispose of this petition, with liberty to the petitioner to approach the Commission with fresh tariff petition in respect of the generating station after approval of RCE by the Central Government. We direct accordingly. We also direct that the annual fixed charges determined by order dated 6.9.2010 in Petition No.57/2010 shall however continue to be in operation till the tariff of the generating station for the period 2009-14 and 2014-19 is determined based on the approved RCE. The filling fees deposited by the petitioner shall be adjusted against the fresh petition to be filed for the period 2014-19 in terms of the liberty granted above."*

5. Subsequently, by communication dated 3.7.2018, the Petitioner was advised to file tariff petitions in respect of their generating stations, by enclosing (i) Board approval of the actual cost of the Company and (ii) at least one of the documents namely (a) the DIA report (b) cost approved by CEA/PIB (c) cost approved by CCEA.

6. In terms of the liberty granted by the Commission vide order dated 27.1.2017 read with the communication dated 3.7.2018, the Petitioner has filed the present petition for revision of tariff of the generating station for the period from 29.6.2010 to 31.3.2014. It has also filed Petition No. 322/GT/2018 for determination of tariff of the generating station for the period 2014-19. The Petitioner has submitted that Petition No. 251/GT/2014 was based on the audited balance sheets for the period 2010-14. It has stated that since this petition is resubmission of the earlier petition which was duly certified by the statutory auditor, there is no change in the financial data and re-auditing has not been done in the present petition. The Petitioner has submitted that the Board of Directors of the Petitioner Company in its 417th meeting on 10.8.2018 had approved the RCE of the project at ₹110882 lakh. The Petitioner has also submitted that the completion cost has been worked out as ₹110882 lakh (at July, 2010 Price Level), excluding contingent liabilities of ₹10274 lakh and the same has been submitted to CEA on 26.11.2010 and the same has been appraised by CEA, Standing Committee/PIB for approval by MOP, GOI. Accordingly, the annual fixed charges claimed by the Petitioner are as under:

(₹ in lakh)

	2010-11			**2011-12**	**2012-13**	**2013-14**
	29.6.2010 to 1.7.2010 (One unit)	**2.7.2010 to 23.7.2010** (Two units)	**24.7.2010 to 31.3.2011** (all three units)			
Depreciation	22.53	274.83	3789.34	5580.63	5668.34	5758.04
Interest on Loan	28.99	353.39	4485.87	5985.51	5696.64	5642.25
Return on Equity	30.95	377.58	5203.83	7575.98	6603.82	7114.59
Interest on Working Capital	1.94	24.43	343.51	496.53	479.63	497.44
O & M Expenses	6.17	90.53	1549.25	2381.76	2518.00	2662.03
Total	**90.59**	**1120.75**	**15371.80**	**22020.42**	**20966.43**	**21674.34**

7. The Petition was heard on 6.2.2019 and the Commission vide ROP had sought certain additional information. Thereafter, the Petition was heard on 14.5.2019 and Petitioner was directed to file certain additional information. Subsequently,

the matter was heard on 27.8.2019 and the Commission, after directing the Petitioner to file additional information, reserved its order in the Petition. In response, the Petitioner has filed the additional information with copy to the Respondents. Reply has been filed by the Respondent UPPCL vide its affidavit dated 14.9.2018 and Respondent BRPL vide affidavit dated 12.7.2019. Rejoinder to the said replies has been filed by the Petitioner vide its affidavit 7.2.2019 and 24.7.2019 respectively. The submissions made by the parties in Petition No. 251/GT/2014 have also been considered. Taking into consideration the submissions of the parties and the documents available on record, we proceed to revise the tariff of the generating station, on prudence check, as stated in the subsequent paragraphs.

Time & Cost Overrun

8. The original date of completion of the project as per Govt. of India 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 RCE submitted by the Petitioner to MOP, GOI on 22.6.2009, the expected date of completion was indicated as October, 2009, which was about 25 months from the original date of completion of the project. The Commission vide its order dated 6.9.2010 in Petition No. 57/2010 had considered the time and cost overrun for a period of 30 months i.e. up to 1.3.2010 and had allowed the same for the purpose of tariff. The relevant portions of the said order are extracted hereunder:

> *"3. 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

(A) Cost Over-run

3. *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.*

4. *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

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

xxxx

6. *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:*

xxxx

7. *Xxxxx*

8. *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***

9. *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)*

10. *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."

9. As stated, the generating station was declared under commercial operation on 24.7.2010. Thus, there is time overrun of 34 months 16 days in the completion of the project and the submissions of the Petitioner, in the background note, for consideration of Standing Committee on time and cost overrun are summarized as under:

*"**Time overrun***

(A) The construction work of the project was taken up by the Petitioner by awarding major works to the contractors by dividing the work into four different work packages viz. SW1- Civil works for DT, Dam and HRT; SW2- Civil works for surge shaft, pressure shaft, power house, TRT; SW3- HM works and SW4- E&M works as under:

Xxxx

(B) LOT-SW-1: The work could not be completed in time due to encountering of various types of problems such as geological, technical, labor, adverse weather, unprecedented floods, law & order etc., during execution. The detailed reasons for component wise delays are given hereunder:

(a) Diversion Tunnel (DT): As per contract the length of DT was 280 m but during execution at site length got increased to 295 m. The completion of DT delayed for 39 days owing to 9 days extra time required for execution of DT & 30 days due to agitation by locals & miscreants during the year 2004.

(b) Dam: The dam works were delayed for 418 days. The major reason for its time over-run was the washing away of Coffer Dams (U/s & D/s of Dam) twice i.e. on 6.7.2005 and 1.9.2006, due to unprecedented heavy rain floods in Sewa River. These floods resulted in stoppage of work of Dam blocks as well as the progress at retarded rates. The State-wide agitations and strikes by workers due to external influence of State/Centre level CITU leaders also affected the pace of work in Dam area.

(C) Head Race Tunnel (HRT)

i) The excavation of HRT was carried from 4 Nos. Adits i.e. from 8 Faces. Every Adit has been approached through Access Road, and the excavation of the tunnel was started, from the respective Adits for which the access roads were made ready.

ii) The tunnel at Face-3 at RD 506.25 m encountered very low cover zone with boulder strata being extremely poor, due to which the tunnel was detoured at RD 447 m. This detouring involved creation of junction by cutting ribs etc., topographical & geological surveys, tackling the chimneys in realigned reach, plugging of abandoned reach and concrete lining in curved portions with extra inputs. This was beyond the control of construction agency. Total 980 days period has been assessed as time over-run in this face.

iii) The tunnel at Face - 4 encountered with shear zone at RD 775m where heavy outflow of pulverised material with ingress of water occurred. Due to this outflow of slush the tunnel whole length of 400 m got filled twice and ultimately derouting of tunnel was found essential from RD 750m. This again involved plugging of abandoned reach, treatment of shear zone in realigned tunnel & lining of additional curves, RCC lining in low cover zone etc. Due to these reasons a period of 617 days as time over-run has been assessed which was beyond control of construction agency.

iv) At Face 5 & 6, there was initial set back due to sliding away of road stretch to portal of Adit III below the formation width. The damaged stretch of road was restored by rock cutting towards uphill side and this activity could be completed by 23.06.2004. After completion of Adit the junction with HRT collapsed due to extremely poor rock conditions which took considerable time for its restoration. During early 2005 the approach road got blocked due to heavy rainfall & snowfall due to which the transportation of machinery and material could not be done. In September 2006, there was a major landslide on approach road which remained recurrent and there was frequent blockade of access road. Due to these slides an alternative approach road was made to avoid the landslide zone. During this period the construction material was shifted manually which affected the pace of tunnelling work. Further, due to high seepage lot of extra time had been consumed *for setting right the face enabling to start next round of drilling. At many times this seepage led to short circuiting of electric supply and finally flooding of tunnel face. Also excessive seepage involved deploying of additional dewatering system from tunnel face to Adit. Due to low cover zone at Face 6 the tunnel has been realigned which involved additional length of tunnelling with additional curves in the tunnels. A time over run of 733 days at Face 5 and 932 days at Face 6 of HRT has occurred, which was beyond control of construction agency.*

iv) At Adit—IV made for Face 7 & 8 shear zones were encountered at many locations. Also the length of Adit was increased due to change in its alignment. Face 7 of HRT has encountered very poor rock strata beyond RD 428 m wherein cavities in crown portion occurred while excavating. In addition to this heavy seepage was encountered at Face 7. De-routing of tunnel at RD 1723 m was involved due to low cover zone which involved additional length of tunneling & additional curves for lining. A time over-run of 617 days at Face-7 of HRT has occurred which was beyond control of construction agency.

v) As per the original tender drawings there was no provision of reinforcement in the HRT However, it was mentioned that Engineer-in-charge will determine the extent of rock steel reinforcement required in the concrete lining, based on the result of the rock mechanic tests. Generally reinforcement will be used where weak rocks and / or high permeability is encountered and crack control is required. In view of the above condition as per the directions of Design Wing the reinforced concrete lining was carried out in HRT at following locations at low cover zones & shear zone areas.

vi) The Tunnel length of 4.4 Kms stretch between Adit III & Adit IV is marked by diverse lithology and varied topography. The tunnel is passing below three prominent nallahs viz Kardoh, Mandol and Kaphila and there are numerous surface depressions. This stretch is also marked by meta-sedimentary and low grade metamorphic rock. In this area major portion is covered by rock like lime stone and carbonaceous phylite. During excavation, seepage condition and water jets were noticed at many locations especially in Face 6 and Face 7. During the rainy season in the month of July, August & September 2008 seepage measured in excavated unlined tunnel at Face 7 was of the order of 20000 lts/min while normally it used to be around 3000 lts/min and at Face 6 it was measured up to 11000 lts/min. Thus the total seepage was around 31000 lts/min from Face 5, 6 & 7. After completion of concrete lining work contact and consolidation grouting work were provided in TS in entire HRT. Time to time leakage was measured and it was found to the order of 3000 lts/min at Adit IV portal even after completion of lining.

(D) State-wide agitation by Amarnath Sangharsh Samiti from June 2008 to September 2008 also affected the construction activities of the project. Since all the business establishments in the Jammu province were closed the arrangements of industrial gas & other consumables were indirectly effected which were coming from Kathua. In addition, the Samiti had stopped all the construction activities in the project w.e.f. 6.8.2008 to 12.8.2008.

(E) A considerable delay have been taken place due to labour strikes, gate meetings and nation I state wide strikes by CITU and work slowdowns etc.

(F) In the entire work, excavation and HRT lining from downstream of Adit-3 (Face-6) was most critical since beginning. In this activity a delay of 1007 days occurred as explained above. HRT lining could be completed on 27-11-2009. Final finishing works of HRT could be completed in 2.6. 2010.

Thus, for Lot SW - 1 there is a time over run of 1090 days based on the delays caused on account of reasons above.

(G) LOT SW-2: The contract for work package, Lot SW-2 was awarded to M/s Patel Engineering Limited at a contract price of ₹820775065.50 and US$ 3801422.07 (1$ = 46.79). The time of completion was 45 months i.e. effectively the works were to be

completed as on 7.6.2007. However, barring a few minor works which do not effect commissioning of the project, the major works stand completed as on 30.9.2009. The time over run of 2 years and 4 months is on account of the following:

a) The delay occurred in accord of forest clearance by State Govt, for the approach road to the VPS & Penstock alignment. As per construction methodology submitted by Contractor, they were to construct an approach road approx. 2 km long leading to the vertical pressure shaft location. However since the road was traversing forest land for which forest clearance was required to be obtained. At the DPR stage, no such road was envisaged by the Project. The forest clearance from the State Govt, was processed and was finally issued by State Govt, on 11-10-04 causing a delay of 249 days on the critical path of the Project for reasons beyond the control of contractor and Department.

b) The delay was caused due to revision necessitated in Design & Drawings of the foundation/structure of Saddle S-93 & S-94 due to encountering geological failure along its foundation location, enlarging the quantum of work manifold. Subsequently, Saddle S-103 & 104 were also required to be modified due to encountering of weak geology. Revisions were taken up in drawings after taking up excavation by Contractor to adapt to site and geological conditions exposed as per normal practice. The revision enlarged the scope and quanta of works thus require additional time for completion of these works, which were on the critical path of the schedule. 70 days were justified hindrance in S-93 & 94 location.

c) The delay was caused due to revision necessitated in design & drawings of the foundation/ structure of AB-11 due to encountering weak foundation condition necessitating large duration consolidation grouting to strengthen the foundation condition, while enlarging the quantum of work manifold. There is a vertical bend at the location of the Vertical Pressure Shaft, where anchor block AB 11 has been designed to encase the bend and pipeline in concrete to counteract destabilizing forces due to passage of water in the bend zone. During excavation of the VPS the top 30 m was found to be fragile material of shattered volcanic rock mass with jointed rock mass. In view of the uncertain foundation conditions, the foundation had to be excavated deep .and had to be strengthened by consolidation grouting to bear the loads of the anchor block AB11. Further the size of the anchor block also had to be enlarged to spread loads over a larger area at this base. This however had not been envisaged at tender stage and was a major change in site condition necessitating requirement of additional time for strengthening foundation and additional quantum of rock anchor, drill grout and concreting.

d) The unprecedented heavy rainfall and unfavorable conditions of work resettled in stoppage of site activities intermittently. In total, around 29 days of work were lost on heavy rainfall periods during the period 02-06-08 to 28-08-08 which hampered all open air site activities.

e) the delays due to disruption of work occurred as a result of strikes, Bharat Bandhs, Amarnath Sangarsh Samiti shut down in J&K. 7 days were lost during period 03-07- 08 to 25-08-08 on account of above reasons. During the Amarnath Sangharsh, local transport within Jammu province was deeply effected causing interruptions in logistical support which led to stoppage and delay in site activities.

f) The delays were caused due to reduced productivity and low morale of workers due to union activities of CITU backed Workers Union. Project work has suffered immensely on account of CITU backed Workers Union's disruptive activities all through the project life, including stoppage and go slow programmes resulted into delay in Project work on the whole.

g) Extra time was required for taking up additional and extra work items namely extra concreting quantum beyond the tender stage drawings in areas of Transformer Yard & Switch Yard. Due to incipient seepage and high water table, the foundations in these areas had to be spread over larger areas to cater to lower *bearing capacity of soil, thus warranting extra time to be given to Contractor to furnish the work vis-a-vis the tender stage quantum of works.*

h) Extra time was required for re-planning and rescheduling the construction methodology for erection work of the surface penstocks, due to the inability to construct AB-11 as previously scheduled, due to poor foundation conditions necessitating consolidation of the foundation as well as redesigning the entire block, including its foundation profile. Previously, erection of surface penstock liner was to be done from two fronts AB1 to AB6 and from AB6 to AB11. However, it had to be reviewed and had to be done in piece meal fashion as per available fronts. Consequently work was taken up from AB1 to AB5 & from AB6 to S104 in downward direction and from S104 to AB11 later in upward direction and finally closing between AB5 to AB6. This methodology entailed extra requirement of time as a consequence.

i) The delays occurred in the fabrication of specials like expansion joints and bifurcations from special grade steel ASTM517 Gr F, which posed technical challenges of the highest order to fabricator, due to extreme high strength of steel posing great difficulty in shaping and bending 75 mm plates in round shape of 1.2 to 2.4m dia. which could finally be done in due consultation with metallurgical wing of IIT, Kharagpur and experienced technicians in view of the challenges it posed.

j) The excessive seepage and dewatering requirements in the bifurcation zone of the penstocks was encountered, which resulted in stoppage of work on bifurcation at times and general slow pace of activity concerning erection and welding keeping quality requirements in view.

k) The high water table in the Switch Yard resulted in providing large bases of the foundation of all equipment installed in the Switch Yard, resulting in additional quantities over those envisaged in tender stage with consequent enlargement in time frame for completion of these works.

l) The requirement of additional protection measure all along surface penstock zone from AB 6 to AB11, in the form of rock anchors welded wire mesh and shotcrete, taken up as additional work for which extra time has to be provided. The entire surface has to be stabilized post excavation due to poor geological condition & in view of the steep cuts to avoid failures which could endanger the safety of the pipeline.

m) The bridging arrangement between AB7 & S71. Extra 6 months were required for creating the same in order to bridge the span over a dry nallah encountered at this location for eventually laying rail track over which the penstock liner erection could take place. This could not be foreseen at tender stage & was an additional requirement during erection of penstock.

n) A lot of concreting had to be done in difficult terrain of the surface penstock requiring use of head load and mule load for shifting of construction material, due to lack of access roads in the vicinity. Further extra excavation also entailed further time frame for completion of the surface penstock works in the rough hilly terrain. Moreover work could not be taken up simultaneously at various locations but subsequently from top elevation to bottom elevation saddles/anchor blocks, due to falling of debris/shooting stones at lower level from areas where work was carried out at higher elevation, endangering lives of workmen. This aspect was a practical difficulty encountered in hilly terrain of surface penstock and required additional time for sequential working instead of concurrent working.

o) The blockage of approaches due to landslides/ rock slides caused due to rains etc. were frequent in rains forcing stoppage of work and additional time for clearance and reconstruction required and remobilizing for work.

p) The continuous seepage of water inside VRS considerably slowed down the progress of execution.

q) Post award, there was an unprecedented price hike in steel prices which was not being compensated adequately through the price adjustment formula in the contract. This steep price hike resulted in cost overrun to the contractor, right at the onset of the contract and coupled with price volatility contributed to delay in procurement of steel as per contractual schedule for fabrication of the liners, as the Contractor was reluctant to bear the losses on this account.

r) The delay in supply of specials like the bought out flexible couplings to be imported from USA, due to reluctance on part of the foreign supplier to adhere to material specifications as per contract condition in place of his proprietary item has also resulted in delaying erection of the Surface Penstock as the matter took time to resolve amicably.

s) The procurement of high grade steel namely ASTM 517 Gr F Steel of very high thickness (63, 56 & 75 mm) involved abnormal delay in its procurement fiom Mittal Steel, Romania on account of its minor quantity of around 120 MT, split into 3 thicknesses, which has to be specially manufactured since Main Steel producers are averse to shift focus from mass production scales to produce special steels of varying thickness in minor amounts. This resulted in delay in procurement, thereby causing late fabrication of the specials viz. 4 no. Expansion Joints required for the erection of Penstock Liners between AB6 to AB11 and expanding time cycle for its completion. Further 2 no. bifurcations for connecting the pipeline to the MIV's of the 3 units in the Power House also got delayed in fabrication and supply thereby expanding the subsequent activity of back filling of the Transformer Yard and its subsequent concreting on top for completion of Transformer Yard works.

(H) LOT SW-3 - HM WORKS: The works of Lot SW-III i.e. Gates and Hoists erection works of the Project were awarded to M/s Om Metals Infraprojects Limited. The date of completion of work including testing and commissioning was 23.6.2007. The supply and erection of equipment was planned and organized in line with requirement at site and availability of civil fronts. The site for Radial Gates erection was handed over to Gate contractor on 16.9.2008. All the gates could be completed on 2.6.2010 and COD could be done on 24.7.2010.

(I) LOT SW-4- ELECTRO-MECHANICAL WORKS: The works of Lot SW-4 were awarded to M/s BHEL for supply and erection of E&M equipment. The works were to be completed in 38 months i.e. upto August 2007. The supply of the equipment was planned and organized to match its requirement at site as storage was estimated on basis of regular inflow and outflow of material. There were certain incidents wherein 2 nos. stator section, 1 no. generator shaft got damaged during transportation of equipment in January 2006 and November 2006. These items were repaired/ replaced. The erection works was done alongside availability of civil fronts. Thus from the above, it is seen that total time over run has been caused due to delay in completion of HRT Face-6 & 7 for reasons which were beyond the control of the construction agency.

Cost overrun

(a) The original project cost approved by GOI vide 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 debt equity ratio of 70:30. The Standing Committee constituted by MOP, GOI for fixing responsibility for time and cost overrun in its report and PIB in its MoM dated 9.3.2017 have recommended RCE of ₹1108.82 crore, including IDC & FC of ₹149.55 crore at completion, excluding contingent liabilities. As such, there is a cost overrun of ₹443.36 crore as under:

(₹ in crore)

Sanctioned cost	*665.46*	*September 2002 PL*
Revised cost estimate	*1108.83*	*July 2010 PL*
Increase/ cost overrun		

(b)The head-wise sanctioned cost, completion cost and the cost variation thereon is as under:

(₹ in lakh)

Sl.No.	Description	Sanctioned Cost at Sept 2002 PL	Completion Cost	Variation	% Variation
A	CIVIL WORKS				
1	DIRECT CHARGES				
	I - WORKS				
	A - PRELIMINARY	6.82	8.14	1.32	19.36
	B- LAND	5.14	13.26	8.12	157.95
	C - WORKS	101.23	152.40	51.17	50.55
	J - POWER PLANT CIVIL WORKS	218.09	275.98	57.89	26.54
	K-BUILDINGS	15.93	23.85	7.92	49.71
	O - MISCELLANEOUS	20.88	36.58	15.70	75.2
	P - MAINTENANCE	3.66	12.88	9.22	251.91
	Q-SPL. TOOLS & PLANTS	24.21	7.58	(-)16.63	(-)68.68
	R-COMMUNICATION	30.60	33.57	2.97	9.72
	X - ENVIRONMENT & ECOLOGY	11.99	10.96	(-)1.03	(-)8.58
	Y- LOSSES ON STOCK	0.91	0.89	(-)0.90	(-)99.02
	TOTAL OF I - WORKS	439.46	575.21	135.75	30.89
	II-ESTABLISHMENT	46.36	179.69	133.33	287.6
	III-TOOLS AND PLANTS	4.08	4.36	0.28	6.86
	IV- SUSPENSE	0.00	0.00	0.00	
	V- RECEIPT & RECOVERIES	(-)15.46	(-)13.88	1.58	(-)10.22
	TOTAL DIRECT CHARGES	474.44	745.38	270.94	57.11
2	**INDIRECT CHARGES**				
	I - Capitalised value of abatement of land revenue (5% of cost of culturable land)	0.00	0.00	0.00	
	II - AUDIT & ACCOUNTS CHARGES	4.08	10.01	5.93	145.34
	(1% OF I-WORKS)	0.00	0.00	0.00	
	TOTAL INDIRECT CHARGES	4.08	10.01	5.93	145.34
	TOTAL CIVIL COST	478.52	755.39	276.87	57.86
B	**ELECTRICAL WORKS**	118.52	203.88	85.36	72.03
C	**TOTAL NET COST WITHOUT IDC**	597.04	959.27	362.24	60.67
D	**IDC & FINANCING CHARGES**	68.42	149.55	81.13	102.25
E	**TOTAL NET COST WITH IDC**	665.46	1108.82	443.36	66.62

(b) The break-up of Cost overrun of ₹443.36 crore is as under:

(₹ in crore)

Variation Heads	Cost Overrun	Increase in % of total sanctioned cost
Price Escalation(PE)	148.49	22.31
Exchange Rate Variation	0.0	0.00
Statutory levies	15.52	2.33

Interest during Construction (IDC& FC)	*81.13*	*12.19*
Addition Deletion	*40.91*	*6.14*
Variation in Quantities	*58.90*	*8.85*
Over/Under Estimation	*98.41*	*14.78*
Total	***443.36***	***66.62***

”

Report of the Standing Committee on Time & Cost Overrun

10. The Standing Committee on Time and Cost overrun had examined the various difficulties faced by the Petitioner in the execution of the project and had detailed the same along with the consequential delay as under:

Time overrun

Description	Months
a. Delay due to handing over of Adit-III access road for mobilization (8.9.2003 to 3.1.2004). b. Delay due to reconstruction of slided stretch of access road from main principal road to Adit portal (4.3.2004 to 23.6.2004).	7.5
Delay due to re-excavation of Adit-III due to collapse of junction portion, due to adverse geology (24.12.2004 to 17.4.2005).	3.5
Delay due to Washing out of approach road to Adit-III.	4
Delay due to Law & order problem like Amaranth Sangharsh Samiti, Oil companies strike etc (27.1.2004 to 29.1.2004; 29.9.2004; 26.12.2005; 20.3.2006; 26.4.2006 to 28.4.2006; 7.5.2006 to 9.5.2006; 20.5.2006; 11.6.2006; 14.6.2006; 24.6.2006 to 26.6.2006; 26.9.2006; 27.9.2006 to 3.10.2006; 11.2.2008 to 13.2.2008; 22.3.2008 to 23.3.2008; 21.4.2008 to 30.4.2008; 1.5.2008 to 21.5.2008; 1.6.2008 to 24.6.2008; 1.8.2008 to 27.10.2008; 13.12.2008; 5.1.2009 to 13.1.2009; 24.4.2009).	7
Delay due to Geological problems in Face-6 of Adit-III of HRT due which additional rock supports were required (18.4.2005 to 30.9.2005).	5.5
Delay due to Increase in scope like curtain grouting, reinforcement and treatment of seepage area in over & invert etc., in face 6 of HRT (22.7.2009 to 27.1.2010).	2.5
Delay due to Additional grouting in HRT after emptying the tunnel, to control huge seepages in HRT (26.1.2010 to 5.2.2010 & 12.2.2010 to 31.5.2010).	2
Delay due to Concrete padding in invert, required because of huge seepages (17.7.2008 to 20.9.2008).	2
Delay due to HRT refilling, testing & commissioning (1.6.2010 to 7.7.2010).	1
Total	**34 months & 16 days**

Cost overrun

<u>Price Variation-</u> *There was an increase of Rs. 148.49 crore on account of Price escalation which is about 22.31% of the sanctioned cost. Out of Rs.148.49 crore around Rs 100.00 crore is due to the price escalation in major civil & electrical* *works during construction period which has been worked out on the basis of price escalation clauses of the respective contracts. The balance around Rs. 48.00 crore is due to the other heads i.e. increase in prices during construction of infrastructure and R&M works of the project e.g. buildings, road, miscellaneous and establishment etc.*

The committee assessed the Price escalation vis-a-vis Whole Price indices (WPI's). It was observed by the committee that considering percentage increase in the WPI's from Sept 2002 (Year of Sanctioned Estimate) to July 2010 (Year of Commissioning of project) of the main components like ferrous metal (137.57%), labour, (69.92%), copper wire & bars (188.61%), steel (73.69%) & cement (102.91%) the price escalation of Rs. 148.49 crore as claimed was in order.

Statutory Duties: *Committee noted that, there was an increase of Rs.15.52 crore which works out to 2.33% of the total sanctioned cost on account of statutory levies. NHPC explained that the same was due to increase in WCT in the State of J&K from 4.2% to 8.4% w.e.f. 01.04.2007 and 10.5% w.e.f. 01.04.2010. The breakup of Rs. 15.52 crore is enclosed as* ***Annex-L.***

Increase in IDC &FC: *Committee noted that there was an increase of Rs. 81.13 Crore which works out to 12.19% of the total sanctioned cost.*

NHPC explained that financing charges amounting to Rs. 1.85 crore were not considered in the sanctioned cost. Increase is also due to increase in Construction period and overall increase in cost of Project.

Addition/deletion: *Committee noted that, there is an increase of Rs 40.91 crore (6.14% of sanctioned cost) under this provision due to the increase in B-land because of additional land requirement & compensation to State Forest Department etc, due to increase in C-works, because of additional items e.g. bearing plates, joint filler & ceiling compound, elastomer etc. which were not envisaged at the DPR stage& due to additional provision in J-power plant because of rocker bearing, PU grout & protection works of penstock area, etc. Also, increase in establishment has also been booked partially under this head.*

Quantity variation:

It was noted by the committee that there was an increase of Rs. 58.90 crore which is mainly due to increase in K-buildings because of accommodation created for CISF in view of prevailing law & order situation in J&K and due to increase in O-Miscellaneous & P-Maintenance, because of additional construction period. Also there is increase in establishment cost due to time overrun.

Over/under estimation: *Committee noted that there is an increase of Rs. 98.41 crore in the project cost mainly due to difference in sanctioned estimated rates and awarded rates in E&M works, increase in establishment cost and increase in O-miscellaneous.*

Committee also observed that the electrical works contract was awarded after two times bidding. The lowest bidder was M/s BHEL Ltd, a Government of India Enterprise whose quoted rates were found justified during evaluation of tender in view of abrupt increase in prices of copper wire bar & ferrous metals from sanctioned estimate price level to the awarded date.

Establishment: *It was observed by the Committee that there was an overall provision of Rs.46.36 crore in establishment in the sanctioned estimate against which establishment cost works out to Rs.179.69 Crore in the completion cost estimate and there is an increase of Rs.133.33 crore in the cost of establishment which has been booked under different variation heads as explained in pre-paras. NHPC explained that the provision for the establishment in the sanctioned estimate was 6.5% based on CEA norms. However, establishment cost has increased* *mainly due to prolonged completion period and increased project cost. The amount of Rs. 179.69 crore (16% of the completion cost) on account of establishment in the completion cost is based on actual deployment of man power by NHPC at site. It was also explained by NHPC that the man power deployment in case of Sewa-ll Project was comparatively more being scattered project having a distance of 45 Km (approx.) by road between Dam and Power house. Besides above the establishment cost has also increased due to wage revision during construction period of the project which was effective from 01.01.2007. In addition the deployment of actual man power increased considerably due to time overrun of 34 months & 16 days which is around 70% of the scheduled construction period. Also the establishment cost has increased due to inflation in prices in terms of increase in D.A. Further, an expenditure upto zero date amounting to Rs. 10.69 crore has been booked in the completion cost estimate, which was not there in the sanctioned estimate but now allowed as per modified CEA norms as reads under:*

"The likely increase in Establishment cost during the period of construction on account of revision of pay scale, increase in DA, increment, etc. shall be allowed at the time of RCE/ completion cost stage as per actual."

Accordingly, based on above norms the actual cost of establishment of Rs. 179.69 crore has been booked in the RCE at completion.

5.3 The project incurred a cost overrun of ₹443.36 crore which is 66.62% of the sanctioned cost. Out of the above major portion of increase in cost due to price escalation amounting to Rs 148.49 crore and statutory levies is 15.52 crore, which altogether account for increase of Rs 164.01 crore which is 24.65% of the sanctioned cost. However, the net completion cost of the project after deduction of price escalation, Statutory levies and ERV comes out to Rs 944.82 crore against the sanctioned cost of Rs 665.46 crore. Hence, the net increase in cost excluding price escalation, statutory levies and ERV comes out to Rs 279.36 crore, which is 41.98% higher than the CCEA approved cost."

11. Based on the above, the observations of the Standing Committee on time and cost overrun are as under:

"4.0 Observations of the Standing Committee

1. *The project has been declared to be under commercial operation w.e.f. 24.07.2010. It has generated 2543.01 MUs worth Rs. 1175.49 crore till 31st Oct' 2015.*

2. *The Committee noted that the Revised Cost at (Completion Cost) of the Project is Rs. 1108.82 Crore, which implies an excess cost of Rs. 443.36 crore i.e. 66.62% of sanctioned cost of Rs. 665.46 crore. The cost overrun excluding Price Escalation (PE), Statutory Levies (SLV) and ERV, within the original approved time cycle works out of total excess cost of Rs 443.36 crores out to Rs.388.65 Crore which is 58.40 % higher than the sanctioned cost. The Committee has also observed that in the total cost overrun of the project, an increase of Rs. 245.14 crore due to fiscal factors and the consequential increase in IDC & FC whereas project cost has increased by Rs.198.23 crore due to other physical factors e.g. addition / deletion, quantity variation and over/under-estimation etc, during execution besides establishment which are explained in the report.*

3. *The Committee noted that the time overrun of 34 months & 16 days has resulted in an increase of Rs. 170.81 crore which is due to fiscal factors and consequential increase in Interest during Construction (IDC) and Financing Charges (FC). The Committee noted that the time overrun of 34 months & 16 days was due to hindrances such as geological, law and order etc. as given at para 3.1 which were found convincing by the Committee."*

Submissions of Respondents

12. The Respondent UPPCL has submitted that the RCE recommended by PIB to MOP, GOI is ₹110882 lakh, whereas, the Petitioner has indicated a total expenditure of ₹114285.94 lakh upto 2013-14. The Respondent has therefore submitted that there is cost overrun of ₹3403.94 lakh which has not been justified by the Petitioner. The Respondent, while pointing out that the PIB has expressed concern at the inordinate delay in the execution of the project, has submitted that the PIB has recommended the RCE of ₹1108.82 crore to MOP, GOI (at completion), including IDC & FC of ₹149.55 crore, excluding contingent liabilities and for an expeditious approval by the CCEA. The Respondent has accordingly submitted that the Petitioner may be directed to justify the Cost overrun and the amount recommended by PIB to MOP and to submit RCE-II, which includes the cost overrun of ₹3403.94 lakh.

13. The Respondent BRPL has submitted that the Commission has determined the tariff of the generating station in order dated 6.9.2010 on the basis of the anticipated cost of ₹983.61 crore, wherein, some reference was made on the time overrun, without any condonation of the same. It has stated that since the Petitioner has sought the final determination of tariff, the time overrun of the various units may be finalized strictly in accordance with the principles enunciated by the Tribunal in its judgment dated 27.4.2011 in Appeal No. 72 of 2010 (MSPGCL Vs MERC & ors). The Respondent has also pointed out that the submission of the Petitioner that the report of the Designated Independent Agency (DIA) for vetting of capital cost, is not applicable during COD is hyper technical and without basis, since the vetting of capital cost is after the COD for tariff determination. Accordingly, the Respondent has submitted that the Petitioner may be directed to engage DIA and submit its report.

Rejoinder of Petitioner

14. The Petitioner, in its rejoinder to the aforesaid replies, has clarified that the RCE of the project is ₹110882 lakh, and the capital expenditure claimed as on 31.3.2014 is ₹114285.94 lakh, which includes normative IDC of ₹5377.00 lakh. It has stated that against the RCE of ₹110882.00 lakh, the project has incurred expenditure of ₹108908.94 lakh only. Moreover, in addition to the actual expenditure of ₹108908.94 lakh, the normative IDC of ₹5377.00 lakh is allowable as per the norms. Hence, there is no cost overrun in the project with regard to RCE of ₹110882 lakh. The Petitioner has pointed out that PIB has recommended the capital cost of ₹110882 lakh, which includes IEDC and IDC corresponding to time overrun of 34 months and 16 days. It has submitted that RCE for ₹110882 lakh is in process of approval by the GOI. The Respondent has stated that the cost appraisal by CEA, the recommendation by Standing Committee and PIB and the approval by CCEA is a normal process. The Petitioner has however clarified that the project had achieved commercial operation from 24.7.2010 and since the guidelines for vetting of capital cost by DIA was issued on 2.8.2010, the same is not applicable. The Petitioner has also stated that it has submitted all documents, except approved RCE by MOP, GOI. Accordingly, the Petitioner has accordingly prayed that the Commission may decide the case on merits, based on the documents available on record.

Analysis & decision

15. We have examined the submissions of the parties and the documents available on record. It is noticed that the Commission vide its order dated 6.9.2010 had considered the time overrun of 30 months (upto 31.3.2010) and the cost overrun on account of time overrun and had allowed tariff of the generating station from 1.3.2010 to 31.3.2014, subject to revision based on truing-up in terms

of Regulation 6 of the 2006 Tariff Regulations. In the said order, the Commission had taken note of the fact that (i) Units I &II have been declared under commercial operation on 29.6.2010 and 2.7.2010 respectively and (ii) RCE was yet to be approved by the GOI. Accordingly, the Petitioner was granted liberty to approach the Commission for revision of tariff based on the approved RCE. No direction was given in the said order for the submission of DIA report on the vetting of capital cost. The relevant portion of the order is extracted hereunder:

> *"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."*

16. Further, the Commission in order dated 27.1.2017 in Petition No. 251/GT/2014 while considering the fact that RCE had been recommended by the Standing Committee and was pending for approval of the Central Government, had granted liberty to the Petitioner to approach the Commission with fresh tariff petition in respect of the generating station after approval of RCE by the Central Government. The relevant portion is extracted hereunder:

> *"10. Hence, in line with the above decision, we are inclined to dispose of this petition, with liberty to the petitioner to approach the Commission with fresh tariff petition in respect of the generating station after approval of RCE by the Central Government. We direct accordingly. We also direct that the annual fixed charges determined by order dated 6.9.2010 in Petition No.57/2010 shall however continue to be in operation till the tariff of the generating station for the period 2009-14 and 2014-19 is determined based on the approved RCE…."*

17. Considering the fact that tariff of the hydroelectric projects regulated by this Commission under Section 79(1)(a) could not be finalized in the absence of

approved RCE, the Commission vide its communication dated 3.7.2018 had advised the hydro generators, including the Petitioner herein, to file tariff petitions in respect of their generating stations, by enclosing (i) Board approval of the actual cost of the Company and (ii) at least one of the documents, namely (a) the DIA report (b) cost approved by CEA/PIB (c) cost approved by CCEA. In view of this, and keeping in view that the Standing Committee (PIB), after appraisal of the CEA & CWC, has recommended the RCE for ₹1108.82 crore (including IDC, FC & ERV of ₹149.55 crore) in its report on time & cost overrun, the Petitioner has filed this petition for revision of tariff of the Project for the period 2010-14. In the above background, we are inclined to consider the issue of time & cost overrun for the purpose of revision of tariff, based on the report of the Standing Committee on Time & Cost overrun.

18. Accordingly, we have examined the issue of time and cost overrun along with the submissions of the parties and the observations/recommendations of the Standing Committee in its report. It is noticed that the Standing Committee, after a detailed analysis of the submissions of the Petitioner in its background note, has highlighted the various factors which were responsible for time and cost overrun of the Project of the Petitioner (as in para 10 above) and has based its recommendations on the same. The observations/recommendations of the Standing Committee are extracted hereunder:

> *"4. On examining the reasons of cost and time overrun, Committee is of the considered opinion that reasons for cost and time overrun were beyond the control of any agency or person, hence no individual/agency can be held responsible for the same.*
>
> *5.1 In view of above deliberations, Standing Committee recommends the Revised Cost of Sewa-ll HE Project amounting to Rs.1108.82 crore including IDC & FC amounting to Rs.149.55 crore at Completion with time overrun of 34 months & 16 days for consideration of the PIB."*

19. In our considered view, the various factors like washing out of approach road to Adit-Ill, agitation by Amarnath Sangharsh Samiti, Civil disturbance in J&K, etc., the delay due to re-excavation of Adit-Ill due to collapse of junction portion, adverse geology, delay due to geological problems in Face-6 of Adit-Ill of HRT, delay due to Increase in scope like curtain grouting, reinforcement and treatment of seepage area in over & invert etc., in face 6 of HRT, delay due to concrete padding in invert required because of huge seepages and delay due to HRT refilling, testing & commissioning had caused the delay in the completion of the Project. Since RCE has been approved after a detailed review by competent technical bodies, we are inclined to consider the recommendations of the Standing Committee that the time overrun of 34 months and 16 days and the Cost overrun on account of the same were beyond the control of any agency or person and no individual can be held responsible for the same. The Standing Committee has also examined the reasons for increase in cost by ₹443.36 crore over the sanctioned cost, due to the said time overrun and had approved the same in the said report. Based on this, we condone the delay of 34 months & 16 days involved in the completion of the project and the cost overrun, due to the time overrun. It is also noticed that PIB in its meeting dated 9.3.2017 has recommended the RCE of the Project for ₹1108.82 crore, including IDC, FC & ERV of ₹149.55 crore. This has been allowed for the purpose of revision of tariff of the generating station. In the event of approval of RCE by CCEA/ MOP, GOI, the same shall be brought to the notice of the Commission. Consequent upon the delay being condoned, the LD recovered by the Petitioner from the Contractor and the insurance proceeds, if any, shall however be considered for the reduction of capital cost.

Capital Cost

20. Clause (1) of Regulation 7 of the 2009 Tariff Regulations provides as under:-

"(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 fund 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. (2) The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff:

…………………………………………………………………………………………

Provided also that the Commission may issue guidelines for vetting of capital cost of hydro-electric projects by independent agency or expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the hydro generating station:

Provided also that the Commission may issue guidelines for scrutiny and commissioning schedule of the hydro-electric projects in accordance with the tariff policy issued by the Central Government under section 3 of the Act from time to time.

Provided also that in case the site of a hydro generating station 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, any expenditure incurred or committed to be incurred by the project developer for getting the project site allotted shall not be included in the capital cost:

Provided also that the capital cost in case of such hydro generating station shall include:

(a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and

(b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) project in the affected area:

Provided also that the capital cost of the generating station shall include the cost for creating infrastructure for supply of power to the rural households located within a radius of five kilometers of the power station if the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility.

Provided also that where the power purchase agreement entered into between the generating company and the beneficiaries or the implementation agreement and the transmission service agreement entered into between the transmission licensee and the long-term transmission customer, as the case may be, provide for ceiling of actual expenditure, the capital expenditure admitted by the Commission shall take into consideration such ceiling for determination of tariff."

21. The capital cost claimed by the Petitioner as on COD of Units/ station in Form 5B is as under:

(₹ in lakh)

		29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
a	Capital Cost without Interest During Construction (IDC), Financing Charges (FC), Foreign Exchange Rate Variation (FERV) & Hedging Cost	30844.56	61674.94	92428.66
	IDC, FC, FERV & Hedging cost			
	Interest During Construction (IDC)*	6328.17	12672.31	19131.35
	Financing Charges (FC)	61.55	123.09	184.64
	Foreign Exchange Rate Variation (FERV)	0.70	1.39	2.09
	Hedging Cost	0.00	0.00	0.00
b	**Total of IDC, FC, FERV & Hedging Cost**	**6390.42**	**12796.79**	**19318.08**
	Capital cost including IDC, FC, FERV & Hedging Cost (a+b)	37234.98	74471.73	111746.74
	Less: Liability	1082.65	2455.47	3829.70
c	**Capital cost for tariff on cash basis**	**36152.33**	**72016.26**	**107917.04**

**includes normative IDC amounting to ₹1783.55 lakh, ₹3570.11 lakh and ₹5377.33 lakh respectively*

Initial spares

22. Regulation 8 of the 2009 Tariff Regulations provides for ceiling norms for these norms in respect of hydro generating stations are as under:

> *"8 Initial spares: Initial spares shall be capitalized as a percentage of the original project cost subject to following ceiling norms:*
>
> *(iii) Hydro generating stations- 1.5%*
>
> *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 shall apply to the exclusion of the norms specified herein."*

23. The Petitioner has claimed initial spares amounting to ₹1815.09 lakh as part of capital expenditure upto the COD of the generating station. Considering the cost of ₹112228.88 lakh as on the cut-off date (31.3.2013), initial spares shall be capitalized, subject to ceiling of 1.5% of the original project cost in terms of the above regulations, which works out to ₹1683.43 lakh. Hence, the claim of the Petitioner for initial spares of ₹1815.09 lakh has been restricted to ₹1683.43 lakh. Accordingly an amount of ₹131.66 lakh (1815.09-1683.43) has been deducted from the capital cost allowed as on COD of the generating station.

Un-discharged liabilities

24. The Petitioner has claimed un-discharged liabilities as on COD of each unit as under:

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (All 3 units)
1082.65	2455.47	3829.70

25. The Petitioner has furnished liability flow statement and asset-wise/party-wise details of un-discharged liabilities claimed as above, duly certified by Auditor. The same has been considered in the capital cost of the generating station.

Interest during Construction (IDC)

26. The amount of IDC claimed by the Petitioner in Form 5B is as under:-

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
6328.17	12672.31	19131.35

27. The IDC claimed as above is inclusive of Normative IDC. The break-up of the same is as below:

(₹ in lakh)

	29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
IDC on loan	4544.62	9102.20	13754.02
Normative IDC	1783.55	3570.11	5377.33
Total	**6328.17**	**12672.31**	**19131.35**

28. The Petitioner has furnished the details of amount, date of drawl, rate of interest etc. in respect of loans. Based on the above details, IDC has been calculated up to COD of the generating station as below:

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
4544.62	9102.20	13754.02

Normative IDC

29. In addition to the IDC on actual loan, the Petitioner has claimed IDC on normative loan, in terms of Regulation 7 (1) (a) (ii) of the 2009 Tariff Regulations, as under:

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
1783.55	3570.11	5377.33

30. The Petitioner has submitted the statement of calculation of normative IDC claimed, duly certified by Auditor. For calculation of normative IDC, the Petitioner has applied weighted average rate of interest in respect of loans availed by the Company as a whole, for the period before the drawl of loans for the project. For the period after the drawl of actual loan for the project, the rate of interest applicable for actual loan has been considered. The Petitioner was directed vide ROP of the hearing dated 6.2.2019, to furnish the balance sheets of the generating station since the 1st infusion of fund and the same has been furnished by the Petitioner vide affidavit dated 6.3.2019. Based on the details furnished by the Petitioner, normative IDC has been worked out and allowed as below:

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
1780.92	3564.17	5364.50

Financing Charges (FC)

31. The Petitioner has claimed FC as on the COD of the units/generating station as under;

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
61.55	123.09	184.64

32. The FC claimed by the Petitioner vide Form 5B as above, is duly certified by Auditor. The Petitioner was directed to furnish the details with respect to the

financing charges claimed along with details and documentary evidences and the same has been furnished for ₹157.96 lakh vide affidavit dated 6.3.2019. Based on these details submitted by the Petitioner, the FC allowed for capital cost is as under:

(₹ in lakh)

29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (all 3 units)
52.65	105.31	157.96

Capital cost as on COD

33. Based on the discussions above, the capital cost allowed for the purpose of tariff is as under:

(₹ in lakh)

	29.6.2010 (1 unit)	2.7.2010 (2 units)	24.7.2010 (All 3 units)
Hard Cost	30844.56	61674.94	92428.66
IDC	4544.62	9102.20	13754.02
Normative IDC	1780.92	3564.17	5364.50
Financial Charges	52.65	105.31	157.96
Contract FERV	0.70	1.39	2.09
Total Capital cost	**37223.45**	**74448.01**	**111707.23**
Less: Initial spares disallowed	0.00	0.00	131.66
Less: Liability	1082.65	2455.47	3829.70
Capital Cost	**36140.80**	**71992.54**	**107745.87**

Discharge of liabilities

34. The Petitioner has furnished the liability flow statement as Appendix-9 (vi) to Form-9, duly certified by Auditor, as under:

(₹ in lakh)

		Liabilities arising out of additional capitalization for the years				Total
	As on COD	2010-11	2011-12	2012-13	2013-14	
Un-discharged liabilities as on COD	**3829.70**					**3829.70**
Liability discharged during 2010-11	960.67					960.67
Liability reversal during 2010-11	280.00					280.00
Un-discharged liabilities as on 31.3.2011	**2589.04**	**628.79**				**3217.82**
Liability discharged during 2011-12	327.65	-				327.65
Liability reversal during 2011-12	172.41	-				172.41
Un-discharged liabilities as on 31.3.2012	**2088.98**	**628.79**	**63.38**			**2781.14**
Liability discharged during 2012-13	1202.18	8.04	12.24			1222.46
Liability reversal during 2012-13	63.19	-	-			63.19
Un-discharged liabilities as on	**823.61**	**620.75**	**51.14**	**186.35**		**1681.85**

31.3.2013						
Liability discharged during 2013-14	640.53	-	-	66.39		706.92
Liability reversal during 2013-14	83.34	420.41	0.07	78.02		581.85
Un-discharged liabilities as on 31.3.2014	**99.75**	**200.33**	**51.07**	**41.93**	**184.55**	**577.63**

35. Based on the details certified by Auditor, the discharge of liabilities claimed by the Petitioner has been allowed. However, the reversal of liabilities has not been considered as discharge of liabilities.

Additional Capital Expenditure

36. Regulation 9 of the 2009 Tariff Regulations provides as under:

"9. Additional Capitalisation. (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) Un-discharged 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, un-discharged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

(2) The capital expenditure incurred or projected to be 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.

(vi) In case of gas/liquid fuel based open/ combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbines after 15 year of operation from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficient operation of the stations.

Provided that any expenditure included in the R&M on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R&M expenditure to be allowed.

(vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receipt system arising due to non-materialisation of full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station.

(viii) Any un-discharged liability towards final payment/withheld payment due to contractual exigencies for works executed within the cut-off date, after prudence check of the details of such deferred liability, total estimated cost of package, reason for such withholding of payment and release of such payments etc.

(ix) Expenditure on account of creation of infrastructure for supply of reliable power to rural households within a radius of five kilometers of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility."

37. The reconciliation of the actual additional capital expenditure claimed as against the additional capital expenditure as per books of accounts, duly certified by Auditor, for the period 2010-14 is as under:

(₹ in lakh)

		2010-11	2011-12	2012-13	2013-14
1	**Addition**				
a.1	**Additions claimed in summary sheet**				
i	Capitalisation against works projected and allowed for additional capitalization during the period 2010-14	11.39	0.00	9.03	1.00
ii	Expenditure not projected/not allowed but capitalised due to actual site requirements (claimed for additional capitalisation)	893.98	868.32	1056.34	503.78
iii	Capitalisation against works due to difference in expenditure allowed and actual capitalisation	11.10	0.00	90.48	155.03
iv	Inter head adjustments	0.00	0.00	859.27	79.88
	Subtotal (a.1)	**916.47**	**868.32**	**2015.12**	**739.68**

a.2	**Other additions**				
i	IUT Transfer	0.00	1.84	7.22	0.00
	Subtotal (a.2)	**0.00**	**1.84**	**7.22**	**0.00**
a	**Total (a.1 + a.2)**	**916.47**	**870.16**	**2022.34**	**739.68**
b	**Deletion**				
i	Deletion of assets on account of replacement of assets	0.00			(-)1.03
ii	Deletion of assets on account of assets sold / declared obsolete / assets written off	(-)0.52	(-)59.34	(-)7.79	(-)362.33
iii	Inter head adjustments	0.00	0.00	(-)886.83	(-)109.67
iv	IUT Transfer	(-)3.31	0.00	0.00	(-)0.54
v	Deemed deletions	(-)0.42	0.00	0.00	
	Total (b)	**(-)4.26**	**(-)59.34**	**(-)894.62**	**(-)473.58**
	Net addition to be claimed	**912.20**	**810.82**	**1127.72**	**266.10**
2	**Additional capitalisation not to be claimed**				
a)	**Addition**				
i ii	Not projected but capitalised due to actual site requirements (not being claimed for add-cap/ Under Exclusion category) Transfer to obsolete assets	0.00 0.52	0.00 0.00	0.00 0.00	94.85 0.90
	Total (a)	**0.52**	**0.00**	**0.00**	**95.75**
b)	**Deletions**				
	Deletion under exclusion category (Liability exists under Un-discharged liability as on COD)	0.00	(-)138.45	(-)63.21	(-)90.13
	Total (b)	**0.00**	**(-)138.45**	**(-)63.21**	**(-)90.13**
	Net additions under exclusion category	**0.52**	**(-)138.45**	**(-)63.21**	**5.62**
	Net Additional capitalisation (including IUT) as per Books of accounts	**913.15**	**672.37**	**1064.51**	**271.72**
3	**Net additional capitalization to be claimed for tariff purpose**				
i	Net additional capitalization as above	912.20	810.82	1127.72	266.10
Add:	Liability existed as on COD (24.07.2010) discharged during the year 2010-14	1240.66	500.06	1265.36	723.87
Add:	Liability discharged during the year for additional capitalization in 2010-14	0.00	0.00	20.28	564.90
Less	Un-discharged liability for additional capitalization in 2009-14	628.79	63.38	186.35	184.55
	Net additional capitalization claimed	**1524.08**	**1247.50**	**2227.02**	**1370.31**

Submissions of Respondents

38. The Respondent, UPPCL in its reply has submitted that the COD of the last unit is 24.7.2010 with a total capital cost of 107817.03 lakh and the total additional capital expenditure of ₹6368.91 lakh was however claimed from 2010-11 to 2013-14. It has stated that out of this an amount of ₹3322.42 lakh was neither projected nor approved by the Commission and the Petitioner has also not mentioned it as a deferred payment or balance and retention payment. The Respondent has submitted that the unapproved amount of additional expenditure of ₹3322.42 lakh

includes an amount of ₹2055.18 lakh, towards major items of the Project, without which it would not have been possible to energize the generating station upto 24.7.2010. Accordingly, the Respondent has submitted that the Commission may direct the petitioner to explain the reasons as to why the approval of the cost of ₹2055.18 lakh towards major items necessary for the project, which constitute 32.26% of the total additional capital expenditure upto 2013-14, was not sought from the Board of Directors, CEA/CWC. The Respondent has added that if the expenditure is not approved by the competent authorities, then the same may not be allowed for additional capitalization. The Respondent BRPL has submitted that the Petitioner has projected additional capitalization after COD of the generating station in Form-9 and the same is incomplete, i.e without any justification and the relevant regulations under which the additional capitalization has been claimed.

Rejoinder of Petitioner

39. In response, the Petitioner in its rejoinder has submitted that Petition No. 57/2010 was filed on the basis of anticipated COD (1.3.2010) and the Commission had allowed tariff for the period 2009-14, subject to truing-up exercise. The Petitioner has pointed out that the said petition was based on the anticipated expenditures as exact estimation of balance works at that time was not possible. The Petitioner has further submitted that variations in the original scope of work were detailed in the RCE and the same has been appraised by the CEA, Standing Committee and PIB. The Petitioner has clarified that the information with respect to additional capitalization has been furnished in Form-9 as per requirement of the regulations and the same may be considered for determination of tariff.

40. Before we deal with the additional capital expenditure for the period 2010-14 (post COD), the admissibility of Inter-unit additional capital expenditure claimed

by the Petitioner is considered. The Petitioner has claimed additional capital expenditure of ₹35863.94 lakh from 29.6.2010 to 1.7.2010. It is noticed that the additional capital expenditure claimed pertains to Unit-III which achieved COD on 2.7.2010. As such, the additional capital expenditure of ₹35863.94 lakh forms part of the actual expenditure as on 2.7.2010. Similarly, the additional capital expenditure of ₹35900.76 lakh claimed by the Petitioner from 2.7.2010 to 23.7.2010 pertains to Unit-II/ station which achieved COD on 24.7.2010. The claim of the Petitioner for this expenditure as additional capital expenditure between COD of units/generating station is not justified. Considering the fact that the interest on loan portion of these capitalized amounts (70%) forms part of IDC till the COD of station, the additional capital expenditure of ₹35900.76 lakh forms part of the actual expenditure as on 24.7.2010 i.e. COD of the generating station. Accordingly, the same has not been considered as additional capital expenditure for the period from 2.7.2010 to 23.7.2010.

41. Based on the reconciliation, the year-wise admissibility of additional capital expenditure under various heads is discussed in the subsequent paragraphs. The additions and deletions claimed for the purpose of tariff by the Petitioner during 2010-14 have been dealt under specific regulations under which it has been claimed, as under:

(₹ in lakh)

Name of Work	2010-11	2011-12	2012-13	2013-14	Total
Works deferred for execution- Regulation 9(1)(ii)	905.08	870.16	2022.34	0.00	**3797.58**
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)	11.39	0.00	0.00	739.69	**751.08**
Total Additions	916.47	870.16	2022.34	739.69	**4548.66**
Total Deletions	(-)4.26	(-)59.34	(-)894.62	(-)473.58	(-)**1431.80**
Net Additions	**912.20**	**810.82**	**1127.72**	**266.10**	**3116.86**

Add: Liability existing as on COD (24.7.2010) discharged during the year 2010-14	1240.66	500.06	1265.36	723.87	3729.95
Add: Liability discharged during the year for additional capitalization 2010-14	0.00	0.00	20.28	564.90	585.18
Less: Un-discharged liability for the additional capital expenditure 2009-14	628.79	63.38	186.35	184.55	1063.07
Net additional capital expenditure claimed	**1524.08**	**1247.50**	**2227.02**	**1370.31**	**6368.91**

42. The net capital cost as on COD of the generating station (24.7.2010) for ₹107745.87 lakh includes Normative IDC of ₹5364.50 lakh. As such, the capital cost as on COD of the generating station in respect of assets/works within the original scope of work of the Project is ₹102381.37 lakh (₹107745.87– ₹5364.50). Accordingly, an amount of ₹8342.30 lakh [(₹110882 lakh as per Standing Committee recommended RCE and allowed by Commission - ₹131.66 lakh of excess initial spares disallowed – ₹26.68 lakh of FC disallowed) - ₹102381.37) is available for consideration in respect of the balance assets/works within the original scope of work of the project, after COD of the generating station. In view of this, we restrict the additional capital expenditure claimed by the Petitioner to ₹8342.30 lakh, in respect of assets/works within the original scope of work of the project.

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

43. The Petitioner has claimed an expenditure of ₹905.08 lakh in 2010-11, ₹870.16 lakh in 2011-12 and ₹2022.34 lakh in 2012-13 in respect of assets/works such as Water supply & Sewerage system, Building-others, Roads & Bridges, Land-leasehold, Vehicle, Land- leasehold, Building containing hydroelectric plant office buildings permanent, Transit camp and field hostel, Residential building permanent, Generating plant and Machinery, Plant and Machinery sub-station, Plant and Machinery others, Construction equipment vehicle, Office equipment, Furniture & fixtures, Computers, Communication equipment, Intangible assets, Other assets, P&M substation, GPM, Land- unclassified / Right to use, Building

contain transplant & equipment, Dams and Barrages, Power channels, Power tunnels and Pipelines, Penstock, Tailrace channels, Hydro chemical works-dams and barrages, Hydro chemical work tunnels and canals, Hydro chemical work-tail race including draft tube gates main generating equipment, Other power plant transformer, Power and control cables controls, Metering and protection, Auxiliary and Ancillary systems, Miscellaneous power plant equipment, Aircraft/ Boats, Addition of fixed asset through inter unit transfer etc., It is noticed that the aforesaid assets/works fall within the original scope of work of the project. Since the additional capital expenditure claimed towards assets/works within the original scope of work of the project is within the ceiling limit of the balance additional capital expenditure of ₹8342.30 lakh and within the cut-off date of the project, the same is allowed under Regulation 9(1)(ii) of the 2009 Tariff Regulations. In view of this, the balance additional capital expenditure of ₹4544.72 lakh (₹8342.30-₹905.08-₹870.16-₹2022.34) is only available for consideration towards balance assets/works within the original scope of work of the project, as on 31.3.2013.

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)

44. The Petitioner has claimed an expenditure of ₹11.39 lakh towards the Purchase of staff bus in 2010-11 under this head. It is observed that the asset claimed was already approved by Commission's order dated 6.9.2010 in Petition No. 57/2010 and capitalized on 'replacement' basis. Accordingly, an amount of ₹11.39 lakh is allowed and the 'assumed deletion' of ₹0.42 lakh, as claimed by the Petitioner towards the replaced old asset, is considered under the head 'Deletions'.

45. Similarly, the Petitioner has claimed an expenditure of ₹739.69 lakh in 2013-14 which includes an amount of ₹156.03 lakh towards assets/works which were earlier allowed by the Commission in order dated 6.9.2010, amount of ₹503.78 lakh towards assets/works within the original scope of work of the project, assets like vehicle, safety related expenses, expenditure for efficient operation of plant, etc., and amount of ₹79.88 lakh for Inter unit transfer. The admissibility of these expenditures is as under:

(i) The claim for ₹156.03 lakh in 2013-14 includes an expenditure on assets/ works such as Computers, Supply and Installation of Sewerage Treatment Plant at Sarthali & Mashka Colony, Permanent water Supply Scheme for Sarthali & Mashka colony, S.O. Hostel for CISF at KCT Camp with wiring work additional Capitalisation, DG room building at dam, Construction of hall & store for transformer and Construction of Office Room at Central Store. Since the assets/works claimed are necessary for plant operation and allowed in Commission's order dated 6.9.2010, the expenditure of ₹156.03 lakh for these assets are allowed. However, considering the nature of expenditure claimed, the same is being accounted in the balance limit of capital cost within the original scope of work.

(ii) The claim of the Petitioner for ₹503.78 lakh is examined as under:

(₹ in lakh)

Assets/Works	Amount claimed	Justification	Remarks for admissibility
Village Hut 92 Kanal 07 Marla for Mashka Siara	62.54	Within original scope as per RCE but delayed by State Govt. advance was given for Leasehold land to State Govt. on 30.03.2012 Rs 52.54 lacs and Rs 10 lacs on 16.04.2013 but capitalized in 2013-14 due to pending of utilization from State Govt.	Since, the additional capital expenditure is for assets/works under original scope/RCE of project which has been claimed after the cut-off date and is within the balance ceiling limit of completion cost of ₹4544.72 lakh, hence the same is allowed.
Adj. of advance of Fisheries & forest department	15.41	Within original scope as per RCE but delayed by Forest Deptt. An amount of Rs 60 lacs kept in the DPR cost of the Project out which after detailed decision with Environment Monitoring committee meetings Rs. 25 lacs given to State Govt. Fisheries Deptt, on 25.01. 2012. The amount has been capitalized on the basis of utilization certificate issued by Forest Deptt/ Technical evaluation by deptt and loaded on major assets of Project as per corporation's accounting policy.	

SHED IN FRONT OF POWER HOUSE	24.94	The work was within original scope as per RCE but could not be completed within cut-off date. This Shed constructed in front to main entrance of Power house and parking of vehicles of Officers and visitors.	
fencing & development of area around quarter guard building at KCT camp.	9.23	The expenditure is within original scope as per RCE but could not completed within cut-off date due to delayed tendering process. The expenditure for fencing of newly constructed CISF campus (Quarter guard Building , barracks S.O Hostel etc.). As per security guidelines and requirement of CISF the complete campus is to be fenced with boundary wall of adequate height and the surrounding of the campus was developed.	
APPROACH ROAD TO JETTY & BOAT SHELTER AT DAM	3.47	The expenditure on this account is within original scope as per RCE but could not be completed within cut-off date due to delay in tendering process. Boat shelter is to be provided at DAM site for storage of Boat, which is kept at DAM site for taking periodically silt level of Reservoir	
Reservoir RIM treatment	7.99	The expenditure on this account was within original scope as per RCE but could not be completed due to delayed tendering process. Some portion of RIM was damaged and the same was restored by providing concrete wall and crate work.	
Short creating Work at Dam	47.71	The expenditure on this account was within original scope as per RCE but could not completed due to falling/ sliding of boulders from the hills. Since there was hindrance to the life of labours, additional work for construction of boulder trap was required prior to this work which could be completed by 2013-14. The hills of the right and left bank of Dam were shattered, rock short creating was done to strengthen the rock and avoid any lose fall on DAM equipment and structure.	
D/o Park at Bani	38.95	The expenditure on this account was within original scope under Biodiversity Conservation Plan. As per Environment policy this Biodiversity park was constructed.	
Security Fencing of Penstock pipe at Dam	41.93	The expenditure on this account was within original scope as per RCE but could not be completed due to delayed tendering process. The penstocks are surface penstock; the expenditure is required for fencing of penstock as per the security guideline.	

PORTABLE DOUBLE CHAMBER ELECTRIC INCINERATOR	18.36	The expenditure on account of incinerator was within original scope as per RCE but could not purchase within cut-off date due to tendering process. This incinerator was purchased and installed as per guidelines of Pollution control Board and environment this is also necessary for getting ISO certification.	
Boulder Trap on right hill slope	64.13	The expenditure on this account was within original scope as per RCE but could not be completed earlier due to delay in tendering process. The hills of the right and left bank of Dam are high and steep , Stone and big boulder frequently sliding from the hill to the structure of DAM with the result some structure of DAM was damaged . In order to avoid the sliding of stone and boulder, a boulder trap was constructed on the middle of the hill.	
Construction of Watch Tower near Power House.	15.52	The Watch tower was construed as per security guidelines and requirement of CISF for Security of Power House. Work is necessary for Security concern.	Since the asset is related to security & safe operation of the plant which will facilitate to efficient operation of the plant. The same is **allowed** under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
SITE BUILDING AT POWER HOUSE (TEMPORARY)	5.67	This building was acquired from BHEL building utilized for CISF office	
Compensation for 9 nos. of water mills located at Bani	5.48	As per order of State Govt. there were certain water mills located up stream and downstream of DAM site prior to construction of DAM. 9 nos of water mills were identified by the State Govt, State Govt. Vide letter No.(copy enclosed) demand of Rs 7.18 lacs out of which utilization of Rs 5.48 lacs was submitted by the State Govt. in 2013-14	The expenditure is done on direction of State Government and hence **allowed.** However, considering the nature of expenditure claimed, it is being accounted in balance limit of capital cost for original scope of work.
Addition due to claim admissible for prolongation of work.	3.32	Paid to M/s GIL against claim for prolongation of work as per contract agreement	Since the time overrun in the instant generating station has been condoned, expenditure claimed is **allowed.** However, considering the nature of expenditure claimed, it is being accounted in balance limit of capital cost for
EMS-09-05-236 Generator	0.88	The contract of M/s BHEL is not closed. These are BOQ items as per the original supply contract which have been delayed & received in 2013-14.	

			original scope of work.
Circuit Breaker Analyser	10.71	Circuit Breaker Analyser is required to check fault in circuit breakers (transmission system) which resulting reduced fault clearing time.	The capitalization of assets will facilitate efficient plant operation and hence **allowed**. However, considering the nature of expenditure claimed, it is being accounted in balance limit of capital cost for original scope of work.
EMES	1.11	The contract of M/s BHEL is not closed now and some of supply is still receiving as per the original contract.	Since the time overrun in the instant generating station has been condoned, expenditure claimed is **allowed.** However, considering the nature of expenditure claimed, it is being accounted in balance limit of capital cost for original scope of work.
SWARAJ MAZDA PRISTAGE WT 49 TC-III ADC WHEEL BASE 3335 MM WITH CARGO BOX	7.80	Vehicle was purchased against replacement of old non serviceable vehicle at S.No. E-9.	The capitalization of assets will facilitate efficient plant operation and hence **allowed.** The decapitalized value of old asset is considered in "deletions".
TRASH RACK CLEANING MACHINE(DAM) ERHARD MUHR, GMBH, GERMANY	8.15	The trash rack cleaning machine was not installed at Dam (intake tunnel). The machine is necessary for preventing wooden logs and other waste material into tunnel. Machine is installed at Dam (intake Tunnel)	These assets have been claimed under Regulation 9(2)(iv) which pertains to additional work which has become necessary for successful and efficient plant operation and therefore **allowed.** Considering the nature of the assets/works claimed, these items should have been incorporated in original scope.
SLUDGE PUMP WITH 2HP MOTOR, 3 PHASE WITH 11M LEAD, KIRLOSKAR, SP-1HM 240X40	0.56	Earlier there was no provision for dry out of Tail Race Tunnel and dewatering pits during maintenance work. Accordingly the pump is purchased.	
KIRLOSKAR MAKE MONO-BLOCK PUMP SET, MODEL KDS 225++	0.32	There is no pump to dewater the seepage water from dam galleries. Accordingly pumps are purchased.	

			Accordingly, expenditure for same is being accounted in balance limit of capital cost for original scope of work
Claim in respect of extra cost due to non-availability of roads & cost incurred for extended period	11.78	Claim in respect of extra cost due to non-availability of roads & cost incurred for extended period provided as recommended by the Standing Committee.	Since the time overrun in the instant generating station has been condoned, expenditure claimed is **allowed.** However, considering the nature of expenditure claimed, it is being accounted in balance limit of capital cost for original scope of work.
Claim of Insurance and charges of BG for Extended period	97.83	Claim of insurance and BG charges for extended period of contract provided as claimed lodge by BHEL recommended by the Standing Committee.	
Total Claimed	**503.79**		
Total Allowed	**503.79**		

(iii) An amount of ₹79.88 lakh towards Inter-head transfer claimed by the Petitioner in 2013-14, includes capital spares for ₹35.62 lakh. The balance amount of ₹44.26 lakh (79.88-35.62) is towards assets/works under the original scope of works e.g. building containing hydroelectric generating plant, dams and barrages, power tunnels and pipelines, main generating equipment, generator step up transformer and air conditioning and ventilation systems. As regards claim for ₹35.62 lakh for capitalization of spares, it is noticed that the limit for initial spares has already exceeded the ceiling limit as per regulations. Also, the capitalization of capital spares after the cut-off date is not permissible. As such, the capitalization of spares for ₹35.62 lakh claimed in 2013-14 is not allowed. As regards the claim for ₹44.26 lakh towards balance assets/works under original scope of works, we are of the considered view that these items should have been incorporated within the original scope of work of the project. Accordingly, the expenditure of

₹44.26 lakh is allowed and accounted for in the balance limit of capital cost within the original scope of work of the project. Accordingly, the total amount of ₹44.26 lakh is allowed under this head.

46. Accordingly, the additions in additional capital expenditure allowed for the period from 24.7.2010 till 31.3.2014 is summarized as under:

(₹ in lakh)

Additional capital expenditure	24.7.2010 to 31.3.2011	2011-12	2012-13	2013-14
Claimed	916.47	870.16	2022.34	739.69
Disallowed	0.00	0.00	0.00	35.62
Allowed	916.47	870.16	2022.34	704.07

47. In view of the above, the total additions allowed for the period 24.7.2010 to 31.3.2014 considering Discharge of liabilities and un-discharged liabilities is as under:

(₹ in lakh)

Name of Work	2010-11	2011-12	2012-13	2013-14	Total
Works deferred for execution- Regulation 9(1)(ii) **(a)**	905.08	870.16	2022.34	0.00	3797.58
Expenditure for assets/works claimed under Regulation 9(2)(iv) but expenditure allowed/accounted under assets/works under original scope of the project in this order **(b)**	0.00	0.00	0.00	675.08	675.08
Expenditure for assets/works allowed under Regulation 9(2)(iv) i.e. other than original scope **(c)**	11.39	0.00	0.00	28.99	40.38
Total additional expenditure allowed (d) = (a)+(b)+(c)	916.47	870.16	2022.34	704.07	**4513.04**
Liability discharged pertaining to COD allowed **(e)**	960.67	327.65	1202.18	640.53	3131.03
Liability discharged related to additional capital expenditure allowed **(f)**	0.00	0.00	20.28	66.39	86.67
Un-discharged liability pertaining to additional capital expenditure **(g)**	628.79	63.38	186.35	184.55	1063.07
Net Discharges allowed (h) = (e)+(f)-(g)	331.88	264.27	1036.11	522.37	**2154.63**
Total additions allowed (i)=(d)+(h)	**1248.35**	**1134.43**	**3058.45**	**1226.44**	**6667.67**

48. In view of above, amount of ₹6627.37 lakh [(a)+(b)+(h)] out of above allowed total additions, is for assets/works under original scope of the project including Discharge of liabilities and un-discharged liabilities. As stated at para 42 above, ₹8342.30 lakh is available for consideration in respect to the expenditure on balance works/assets under the original scope of work of the project, the above allowed amount of ₹6627.37 lakh is under the permissible ceiling limit of ₹8342.30 lakh for additional capital expenditure under the original scope of work.

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

49. Proviso to Regulation 7(1) of the 2009 Tariff Regulations provides that the assets forming part of the project, but not in use, shall be taken out of the capital cost. The Petitioner has de-capitalized an amount of ₹4.26 lakh (including assumed deletion for ₹0.42 lakh), ₹59.34 lakh, ₹894.62 lakh and ₹473.58 lakh during the years 2010-11, 2011-12, 2012-13 and 2013-14 respectively, towards the gross value of original assets towards assets replaced by the Petitioner. The de-capitalization claimed by the Petitioner is in order and hence allowed as under:

(₹ in lakh)

2010-11	2011-12	2012-13	2013-14	Total
(-) 4.26	(-) 59.34	(-) 894.62	(-) 473.58	(-) 1431.80

Exclusions in additions (incurred, capitalized in books but not to be claimed for tariff purpose) as per reconciliation with books of account

50. The following year-wise expenditure has been excluded from its claim by the Petitioner on transfer of Obsolete/ surplus assets to obsolete head, minor assets, capital spares-wrongly booked in DAM, etc.

(₹ in lakh)

		2010-11	2011-12	2012-13	2013-14
	Additional capitalisation not to be claimed				
a)	**Addition**				
i	Not projected but capitalised due to actual site requirements (not being claimed for additional capitalization/ under Exclusion category) (capital spares & minor assets)	0.00	0.00	0.00	94.85

ii	Transfer to obsolete items	0.52	0.00	0.00	0.90
	Total (a)	**0.52**	**0.00**	**0.00**	**95.75**

51. The Petitioner has considered an expenditure of ₹95.75 lakh under exclusion, which pertains to transfer of surplus/obsolete assets to obsolete head, minor assets procured after the cut-off date and capital spares-wrongly booked in DAM, etc. As stated above, tariff is not permitted in respect of assets which have become obsolete and are not in use. Since capitalization of minor assets after the cut-off date is not permissible in terms of the 2009 Tariff Regulations and assets wrongly booked under any head is also not allowed to be capitalized, the claim of the Petitioner for exclusion of positive entries is in order and is therefore allowed.

Exclusions in deletions (de-capitalized in books but not to be considered for tariff purpose)

52. The Petitioner has de-capitalized the following amounts in books of accounts and kept under exclusion for the purpose of tariff:

(₹ in lakh)

	2010-11	**2011-12**	**2012-13**	**2013-14**
Deletion under exclusion category (liability exists under un-discharged liability as on COD)	0.00	(-)138.45	(-)63.21	(-)90.13
Total (b)	**0.00**	**(-)138.45**	**(-)63.21**	**(-)90.13**

53. The Petitioner has prayed that the negative entries may be ignored/ excluded for the purpose of tariff, as this amount pertains to the liability which already exists as un-discharged liability as on COD. Considering the fact that these amounts have already been deducted from the capital cost as un-discharged liabilities, to avoid double deduction, the deletion of the said amounts is excluded/ ignored for the purpose of tariff. In view of the above, the following amounts have been excluded / ignored for the purpose of tariff:

(₹ in lakh)

Sl No.		2010-11	2011-12	2012-13	2013-14
1	**Additional capitalisation**				
a)	**Addition**				
i	Not projected but capitalised due to actual site requirements (not being claimed for additional capitalization / Under Exclusion)	0.00	0.00	0.00	94.85
ii	Transfer to obsolete items	0.52	0.00	0.00	0.90
	Total (a) (as above)	**0.52**	**0.00**	**0.00**	**95.75**
b)	**Deletion**				
	Deletion under exclusion (Liability exists under Un-discharged liability as on COD)	0.00	(-)138.45	(-)63.21	(-)90.13
	Total (b) (as above)	**0.00**	**(-)138.45**	**(-)63.21**	**(-)90.13**
	Net addition under exclusion	**0.52**	**(-)138.45**	**(-)63.21**	**5.62**

54. Accordingly, the net additional capital expenditure allowed for the period from 29.6.2010 to 31.3.2014 is as under:

(₹ in lakh)

	2010-11	2011-12	2012-13	2013-14
Total Additions allowed (a)	1248.35	1134.43	3058.45	1226.44
Total Deletions allowed (b)	(-) 4.26	(-) 59.34	(-) 894.62	(-) 473.58
Net Additional Expenditure allowed (c)=(a)+(b)	**1244.09**	**1075.09**	**2163.83**	**752.85**

Capital Cost from COD of Unit-I till 31.3.2014

55. Based on the above, the capital cost allowed, after adjustment of the liabilities discharged and un-discharged liabilities pertains to additional capital expenditure, is summarized as under:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	2.7.2010 to 23.7.2010 (Two units)	24.7.2010 to 31.3.2011 (all three units)	2011-12	2012-13	2013-14
Opening Capital Cost	36140.80	71992.54	107745.87	108989.96	110065.05	112228.88
Net total additional capital expenditure allowed	**0.00**	**0.00**	**1244.09**	**1075.09**	**2163.83**	**752.85**
Closing capital cost	**36140.80**	**71992.54**	**108989.96**	**110065.05**	**112228.88**	**112981.73**

Debt Equity Ratio

56. Regulation 12 of the 2009 Tariff Regulations provides as under:

> *"12. Debt-Equity Ratio (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 utilized 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 modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation."*

57. Accordingly, the debt equity ratio of 70:30 has been considered in terms of the above regulation for the purpose of tariff.

Return on Equity

58. Regulation 15 of the 2009 Tariff Regulations (with Second amendment) provides as under:

> *"15. Return on Equity. (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% for thermal generating stations, transmission system and run of the river generating station, and 16.5% for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage and shall 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 Minimum Alternate/Corporate Income Tax Rate for the year 2008-09, as per the Income Tax Act, 1961, as 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.

59. In accordance with the above regulations, as amended, Return on Equity has been computed as follows:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	**2.7.2010 to 23.7.2010** (Two units)	**24.7.2010 to 31.3.2011** (all three units)	**2011-12**	**2012-13**	**2013-14**
Opening Equity	10842.24	21597.76	32323.76	32696.99	33019.51	33668.66
Addition due to additional capitalization	0.00	0.00	373.23	322.53	649.15	225.85
Closing Equity	10842.24	21597.76	32696.99	33019.51	33668.66	33894.52
Average Equity	10842.24	21597.76	32510.38	32858.25	33344.09	33781.59
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.750%	16.500%
Tax rate for the year	33.218%	33.218%	33.218%	32.445%	20.008%	20.961%
Rate of Return on Equity (Pre Tax)	23.210%	23.210%	23.210%	22.944%	19.689%	20.876%
Return on Equity *(Pre Tax) (pro-rata)*	**20.68**	**302.14**	**5188.93**	**7539.00**	**6565.12**	**7052.24**

Interest on Loan

60. Regulation 16 of the 2009 Tariff 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."

61. The salient features of computation of interest on loan allowed in tariff are summarized as under:

i) The opening gross normative loan has been arrived at in accordance with Regulation 16 of the 2009 Tariff Regulations.

ii) 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.

iii) The repayment for the year of the tariff period has been considered equal to the depreciation allowed for that period.

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

62. In terms of the above regulations, Interest on loan has been computed as under:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	2.7.2010 to 23.7.2010 (Two units)	24.7.2010 to 31.3.2011 (all three units)	2011-12	2012-13	2013-14
Gross Normative Loan	25298.56	50394.78	75422.11	76292.97	77045.53	78560.21
Cumulative Repayment up to Previous Year	0.00	15.05	234.98	4013.47	9566.85	15201.97
Net loan opening	25298.56	50379.72	75187.14	72279.51	67478.68	63358.24
Repayment during the period	15.05	219.92	3778.49	5553.38	5635.12	5707.58
Additional capitalization	0.00	0.00	870.86	752.56	1514.68	526.99
Net loan closing	25283.51	50159.80	72279.51	67478.68	63358.24	58177.66
Average loan	25291.03	50269.76	73733.32	69879.09	65418.46	60767.95
Weighted average rate of interest on loan	9.32%	9.33%	8.76%	8.53%	8.66%	9.20%
Interest *(pro-rata)*	**19.37**	**282.80**	**4441.38**	**5960.83**	**5667.06**	**5592.74**

Depreciation

63. Regulation 17 of the 2009 Tariff Regulations provides as under:

"(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 the cumulative depreciation including Advance against Depreciation] as admitted by the Commission up to 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."

64. The weighted average rate of depreciation calculated in terms of the above regulation has been considered for purpose of depreciation. Accordingly, depreciation has been worked out and allowed as under:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	**2.7.2010 to 23.7.2010** (Two units)	**24.7.2010 to 31.3.2011** (all three units)	**2011-12**	**2012-13**	**2013-14**
Opening gross block	36140.80	71992.54	107745.87	108989.96	110065.05	112228.88
Additional capitalization	0.00	0.00	1244.09	1075.09	2163.83	752.85
Closing gross block	36140.80	71992.54	108989.96	110065.05	112228.88	112981.73
Average gross block	36140.80	71992.54	108367.92	109527.50	111146.96	112605.30
Cost of free hold land	60.58	121.15	181.73	181.73	181.73	181.73
Rate of Depreciation (Annualised)	5.068%	5.068%	5.070%	5.070%	5.070%	5.069%
Depreciable value	32472.20	64684.24	97367.57	98411.20	99868.71	101181.21
Remaining depreciable value	32472.20	64669.19	97132.59	94397.73	90301.86	85979.24
Depreciation ***(pro-rata)***	**15.05**	**219.92**	**3778.49**	**5553.38**	**5635.12**	**5707.58**

O&M Expenses

65. Regulation 19(f) (v) of the 2009 Tariff Regulations provides as under:

"In case of hydro generating station 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 rehabilitation & resettlement works) and shall be subject to annual escalation of 5.72% per annum for subsequent years."

66. Regulation 3 (29) of the 2009 Tariff Regulation defines 'original project cost' as under:

"original project cost' means the capital expenditure incurred by the generating company or the transmission licensee, as the case may be, within the original scope of the project up to the cut-off date as admitted by the Commission"

67. The Petitioner has claimed the O&M expenses as under:

(₹ in lakh)

2010-11			2011-12	2012-13	2013-14
29.6.2010 to 1.7.2010 (One unit)	2.7.2010 to 23.7.2010 (Two units)	24.7.2010 to 31.3.2011 (all three units)			
6.17	90.53	1549.25	2381.76	2518.00	2662.03

68. In terms of the above regulations, O&M expenses has been worked out as under:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	2.7.2010 to 23.7.2010 (Two units)	24.7.2010 to 31.3.2011 (all three units)	2011-12	2012-13	2013-14
Capital cost considered as on COD of Units/station	36140.80	71992.54	112228.88			
Less: R&R expenses	90.26	180.52	270.79			
Capital cost for the purpose of O&M expenses	36050.54	71812.01	111958.09			
Annualized O&M expenses @ 2% of above and escalation @5.72% from 2011-12	721.01	1436.24	2239.16	2367.24	2502.65	2645.80
Number of days	3	22	251			
O&M expenses allowed *(pro-rata)*	**5.93**	**86.57**	**1539.81**	**2367.24**	**2502.65**	**2645.80**

Interest on Working Capital

69. Regulation 18(1)(c) of the 2009 Tariff Regulations provides that the working capital for hydro based generating stations shall cover:

"(i) Cost of coal for 1.5 months for pit-head generating stations and two months for non-pithead generating stations, for generation corresponding to the normative annual plant availability factor;

(ii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel oil, cost of fuel oil stock for the main secondary fuel oil;
(iii) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 19.

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor; and

(v) O&M expenses for one month."

Rate of interest on working capital

70. Clause (3) of Regulation 18 of the 2009 Tariff Regulations as amended on 21.6.2011 provides as under:

"Rate of interest on working capital shall be on normative basis and shall be considered as follows:

(i) SBI short-term Prime Lending Rate as on 01.04.2009 or on 1st April of the year in which the generating station or unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the unit or station whose date of commercial operation falls on or before 30.06.2010.

(ii) SBI Base Rate plus 350 basis points as on 01.07.2010 or as on 1st April of the year in which the generating station or a unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the units or station whose date of commercial operation lies between the period 01.07.2010 to 31.03.2014.

Provided that in cases where tariff has already been determined on the date of issue of this notification, the above provisions shall be given effect to at the time of truing up."

71. The prime lending rate of SBI as on 1.4.2010 was 11.75% and the SBI Base rate as on 1.7.2010 was 7.50%. As such, interest rate of 11.75% for the period from 29.6.2010 to 1.7.2010 and 11% (7.50%+3.50%) for the period from 2.7.2010 to 31.3.2014 has been considered for the purpose of tariff. In line with the above regulations, Interest on working capital has been calculated as follows:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	**2.7.2010 to 23.7.2010** (Two units)	**24.7.2010 to 31.3.2011** (all three units)	**2011-12**	**2012-13**	**2013-14**
Maintenance Spares	0.89	12.99	230.97	355.09	375.40	396.87
O M expenses	0.49	7.21	128.32	197.27	208.55	220.48
Receivables	10.40	151.72	2544.67	3647.07	3469.30	3576.62
Total	**11.79**	**171.92**	**2903.96**	**4199.42**	**4053.25**	**4193.97**
Interest Rate	11.75%	11.00%	11.00%	11.00%	11.00%	11.00%
Interest on Working Capital *(pro-rata)*	**1.38**	**18.91**	**319.44**	**461.94**	**445.86**	**461.34**

Annual Fixed Charges

72. Based on the above, the annual fixed charges approved for the generating station for the period 2010-14 is summarised as under:

(₹ in lakh)

	29.6.2010 to 1.7.2010 (One unit)	2.7.2010 to 23.7.2010 (Two units)	24.7.2010 to 31.3.2011 (all three units)	2011-12	2012-13	2013-14
Return on Equity	20.68	302.14	5188.93	7539.00	6565.12	7052.24
Interest on Loan	19.37	282.80	4441.38	5960.83	5667.06	5592.74
Depreciation	15.05	219.92	3778.49	5553.38	5635.12	5707.58
Interest on Working Capital	1.38	18.91	319.44	461.94	445.86	461.34
O & M Expenses	5.93	86.57	1539.81	2367.24	2502.65	2645.80
Total	**62.42**	**910.35**	**15268.04**	**21882.39**	**20815.80**	**21459.70**

Normative Annual Plant Availability Factor (NAPAF)

73. The NAPAF of 90% is allowed for the period 2010-14 for the generating station in terms of Regulation 27 of the 2009 Tariff Regulations.

Design Energy (DE)

74. CEA has approved the annual Design Energy of the generating station as 533.53 MU. Accordingly, the same has been considered for the generating station as detailed under:

Months		**Design Energy (MUs)**
April	I	22.59
	II	17.13
55.93	III	16.21
May	I	14.13
	II	12.35
39.01	III	12.53
June	I	27.36
	II	27.36
81.92	III	27.20
July	I	26.73
	II	19.86
76.69	III	30.10
August	I	27.36
	II	27.36
84.82	III	30.10
September	I	17.78
	II	13.61
40.90	III	9.51
October	I	7.05
	II	7.45

21.36	III	6.86
November	I	5.31
	II	4.89
14.66	III	4.46
December	I	4.00
	II	3.94
11.70	III	3.76
January	I	3.55
	II	3.28
9.72	III	2.89
February	I	3.81
	II	5.47
22.61	III	13.33
March	I	16.75
	II	27.36
74.21	III	30.10
Total		**533.53**

75. The difference between the annual fixed charges already recovered by the Petitioner and the annual fixed charges determined by this order shall be adjusted in terms of Regulation 6 (6) of the 2009 Tariff Regulations.

76. Petition No. 281/GT/2018 is disposed of in terms of the above.

Sd/-
(I.S.Jha)
Member

Sd/-
(Dr M.K. Iyer)
Member

Sd/-
(P.K.Pujari)
Chairperson