

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 233/GT/2014**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson**

**Shri A.K.Singhal, Member**

**Shri A. S. Bakshi, Member**

**Dr. M. K. Iyer, Member**

**Date of Hearing: 05.01.2016**

**Date of Order: 17.06.2016**

**In the matter of**

Revision of tariff for the period 2009-14 after true-up exercise and Determination of tariff for the period 2014-19 in respect of Chamera-II Hydroelectric Project for the period 2014-19.

**AND**

**In the matter of**

NHPC Ltd,  
NHPC Office Complex, Sector 33,  
Faridabad – 121003

**...Petitioner**

Vs

1. Punjab State Power Corporation Limited  
The Mall, Secretariat Complex,  
Patiala – 147001
2. Haryana Power Purchase Centre,  
Shakti Bhawan, Sector, 6  
Panchkula – 134109
3. BSES Rajdhani Power Ltd  
BSES Bhawan, Nehru Place,  
New Delhi – 110019
4. Uttar Pradesh Power Corporation Ltd  
Shakti Bhavan, 14, Ashok Marg,  
Lucknow – 226001
5. BSES Yamuna Power Ltd  
Shaktikiran Building, Karkadooma,  
Delhi – 110 019
6. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,  
Vidut Bhavan, Janpath, Jyothi Nagar  
Jaipur – 302005
7. Tata Power Delhi Distribution Ltd  
Sub-station Building, Hudson Lane  
Kingsway Camp, Delhi –110009
8. Jaipur Vidyut Vitaran Nigam Ltd.,  
Vidut Bhavan, Janpath, Jyothi Nagar  
Jaipur – 302005



9. Jodhpur Vidyut Vitaran Nigam Ltd.  
New Power House, Industrial Area,  
Jodhpur – 342003
10. Uttaranchal Power Corporation Ltd,  
Urja Bhawan, Kanwali Road,  
Dehradun-248001
11. Ajmer Vidyut Vitaran Nigam Ltd.  
Old Power House, Hatthi Bhatta,  
Jaipur Road, Ajmer – 305001
12. Himachal Pradesh State Electricity Board,  
Vidyut Bhawan, Kumar House,  
Shimla-171004
13. Engineering Department,  
UT Secretariat, Sector 9D  
Chandigarh-160009
14. Power Development Department,  
Civil Secretariat,  
Jammu-180001 (J&K)

...Respondents

#### **Parties Present**

Shri A.K Pandey, NHPC  
Shri Piyush Kumar, NHPC  
Shri Naresh Bansal, NHPC  
Shri Jitendra Kumar Jha, NHPC  
Shri R.B. Sharma, Advocate, BRPL  
Shri S.K Agarwal, Advocate, Rajasthan Discoms  
Shri G.L Verma, Advocate, Rajasthan Discoms  
Ms. Neelam, Advocate, Rajasthan Discoms

#### **ORDER**

This petition has been filed by the petitioner, NHPC, for revision of tariff in respect of Chamera-II Hydroelectric Project (3 x 100 MW) ('the generating station'), for the period 2009-14 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") and for determination of tariff for the period 2014-19 in terms of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").

2. The generating station comprises of three Units which were commissioned on 2.11.2003, 1.1.2004 and 31.3.2004. The tariff for the period from 1.4.2009 to 31.3.2014 was approved by the Commission vide order dated 27.1.2012 in Petition No.66/2010. Subsequently, in Review Petition No. 9/2012, the tariff of the above generating station for the period from 1.4.2009 to 31.3.2014



was revised vide order dated 1.10.2012. Thereafter, by order dated 27.1.2015 in Petition No. 231/GT/2013, the tariff of the generating station was revised, based on the actual additional capital expenditure incurred during the period 2009-12 and revised projections for additional capital expenditure for the period 2012-14. Accordingly, the annual fixed charges allowed for the period 2009-14 by the said order dated 27.1.2015 is as under:

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	14420.74	14248.57	14082.10	10902.62	11422.08
Interest on Loan	6993.83	4382.63	4437.72	4320.74	3240.56
Depreciation	10322.31	10321.12	10321.51	10483.41	10483.56
Interest on Working Capital	991.10	951.91	969.53	925.28	935.87
O & M Expenses	6589.78	6966.71	7365.21	7786.50	8231.89
<b>Total</b>	<b>39317.76</b>	<b>36870.94</b>	<b>37176.07</b>	<b>34418.55</b>	<b>34313.96</b>

### **Revision of Annual Fixed Charges for 2009-14**

3. Clause (1) of Regulation 6 of the 2009 Tariff Regulations provides as under:

*"6. Truing up of Capital Expenditure and Tariff (1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2014, as admitted by the Commission after prudence check at the time of truing up.*

*Provided that the generating company or the transmission licensee, as the case may be, may in its discretion make an application before the Commission one more time prior to 2013-14 for revision of tariff."*

4. The petitioner in this petition has claimed revision of tariff for the period 2012-14 based on the actual additional capital expenditure incurred during the years 2012-13 and 2013-14 after truing-up in terms of Regulation 6(1) of 2009 Tariff Regulations and for determination of annual fixed charges for the period 2014-19 in terms of the provisions of the 2014 Tariff Regulations. Accordingly, the annual fixed charges claimed by the petitioner for the period 2012-14 are as under:

	(₹ in lakh)	
	2012-13	2013-14
Return on Equity	12096.05	12828.56
Interest on Loan	3804.14	3154.45
Depreciation	10330.81	10336.88
Interest on Working Capital	936.20	960.33
O & M Expenses	7786.50	8231.89
<b>Annual Fixed Charges</b>	<b>34953.70</b>	<b>35512.11</b>

5. The respondents UPPCL and BRPL have filed replies in the matter and the petitioner has filed its rejoinder to the said replies. Accordingly, based on the submissions of the parties and the documents available on record, we proceed to revise the tariff for the period 2011-14 based on



truing-up exercise and also for determination of tariff for the period 2014-19 in respect of the generating station as stated in the subsequent paragraphs:

### **Capital cost**

6. Regulation 7 (1) (a) of the 2009 Tariff Regulations provides as under:

*“7. Capital Cost. (1) Capital cost for a project shall include: (a) the expenditure incurred or projected to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan - (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;”*

7. The Commission in its order dated 27.1.2015 in Petition No.231/GT/2013 had considered the closing capital cost of ₹200208.46 lakh as on 31.3.2012. Accordingly, the capital cost of ₹200208.46 lakh has been considered as the opening capital cost as on 1.4.2012 for revision of tariff for 2012-14.

### **Actual Additional Capital Expenditure (2012-14)**

8. Clause (2) of Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011, provides as under:

*“9. (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-materialization 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 kilometres of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility.”

9. The actual additional capital expenditure claimed by the petitioner as against the projected additional capital expenditure allowed for the period 2012-14 in order dated 27.1.2015 in Petition No.231/GT/2013 is as under:

	(₹ in lakh)	
	2012-13	2013-14
Projected additional capital expenditure allowed	0.00	5.98
Actual additional capital expenditure claimed	203.56	(-) 99.13

10. The re-conciliation of the actual additional capital expenditure claimed with respect to additional capital expenditure as per books of accounts duly certified by auditor for the period 2012-13 and 2013-14 is as under:

Sl. No.		(₹ in lakh)	
		2012-13	2013-14
<b>1</b>	<b>Additional Capitalization (being claimed)</b>		
(a)	<b>Additions</b>		
i	Capitalization against works projected and allowed for additional capital expenditure	0.00	0.00
ii	Capitalization against works due to difference in allowed and actual capitalization	10.14	0.00
iii	Not projected/not allowed but capitalized due to actual site requirements (being claimed for additional capital expenditure)	222.97	137.96
	<b>Total (a)</b>	233.11	137.96
(b)	<b>Deletion / Deduction</b>		
i	Deletion of assets on account of replacement of assets	(-)12.33	(-) 275.05
ii	Deletion of assets on account of assets sold / declared obsolete / assets written off	0.00	(-) 6.86



	<b>Total (b)</b>	(-) 12.33	(-) 281.91
	Net Addition claimed (c)=(a)-(b)	220.78	(-)143.95
<b>2</b>	<b>Additional Capitalization (not claimed)</b>		
<b>(d)</b>	<b>Addition</b>		
i	Not projected but capitalized due to actual site requirements (not being claimed for add-cap/ Under Exclusion category)	627.05	640.69
ii	Addition on account of Inter-unit transfer (minor assets)	9.77	2.69
	<b>Total (d)</b>	636.81	643.39
<b>(e)</b>	<b>Deletion</b>		
i	Consumption of capital spares (deletion to not be claimed/Under exclusion category)	(-)76.81	(-) 216.63
ii	Deletion under exclusion category (deletion for minor assets/ tools/ tackles etc. which are not considered by Commission for additional capitalization)	(-)28.47	(-)0.36
iii	Inter Unit Transfer (IUT) (minor assets)	(-)1.77	(-)3.40
	<b>Total (e)</b>	(-)107.06	(-) 220.38
	Net Addition under Exclusion (f)=(d)-(e)	529.76	423.00
	Net Additional Capitalization (including IUT) as per books of accounts (g)=(c)+(f)	750.53	279.05
<b>3</b>	<b>Net additional capitalization claimed for tariff</b>		
	Net additional capitalization as above (c)	220.78	(-)143.95
	Assumed deletions (h)	(-) 4.23	(-) 2.41
	Un-discharged liability in additional capitalization (i)	17.55	16.59
	Liabilities as on 31.3.2009 discharged (j)	0.00	45.97
	Liability discharged during 2009-14 for capitalization (k)	4.56	17.86
	<b>Net additional capitalization claimed (l)=c+h+i+j+k</b>	<b>203.56</b>	<b>(-) 99.13</b>

11. Based on the above reconciliation, the year-wise admissibility of the additional capital expenditure under various heads is examined as stated in the subsequent paragraphs:

**Additions against works already approved**

12. No additional capital expenditure was approved by Commission during the year 2012-13. Similarly, no additional capital expenditure against the works approved by Commission has been incurred by the petitioner during the year 2013-14.

**Works allowed in previous years but capitalized in 2012-13**

13. The details of works/assets, the projected additional capital expenditure allowed for these works along with reasons for admissibility of the actual additional capital expenditure in terms of 2009 Tariff Regulations are as under



Sl. No	Assets/works	Amount allowed on projected basis	Actual expenditure incurred/ claimed	Remarks for admissibility of expenditure
	Replacement of old paradigm plus PBX with new corporate PBX of 324 connections for internal communication system.	11.55	10.14	The Commission vide order dated 27.1.2012 in Petition No. 66/2010 had allowed the capitalization of this item during the year 2010-11. The petitioner has submitted that the new asset has been capitalized in 2012-13 and the replaced asset has been deleted from the books of accounts in 2013-14. Since the new asset has been capitalized in 2012-13 and the de-capitalization of the old asset has also been shifted from 2013-14 i.e. year of de-capitalization in books, the same has been <b>allowed</b> . The de-capitalization of the old asset has been considered under "Assumed Deletions".
	<b>Total claimed</b>		<b>10.14</b>	
	<b>Total allowed</b>			<b>10.14</b>

**2013-14**

14. No additional capital expenditure under has been claimed by the petitioner during the year 2013-14.

**Capital expenditure not projected/allowed by the Commission, but incurred and claimed**

15. The petitioner has claimed additional capital expenditure incurred against new works/assets along with reasons for its admissibility. The respondent, BRPL has submitted that the entire amount of ₹222.97 lakh claimed for 2012-13 was neither projected nor approved by the Commission and hence cannot be permitted to be capitalized. It has also submitted that these items are in the category of O&M and also minor in nature. The respondent, UPPCL has submitted that some of the items like roads, street lighting, Pumps hospital equipment and residential building may not be allowed as they are in the category of O&M and also minor in nature. The details of works/assets, the additional capital expenditure incurred against new works/ assets along with reasons for admissibility of the actual additional capital expenditure in terms of 2009 Tariff Regulations is as under.





(₹ in lakh)				
Sl. No	Assets/works	Actual expenditure incurred / claimed	Justification submitted by petitioner	Admissibility of expenditure
1	Hill slope protection & restoration of access road at surge shaft area vide Package C-287	105.82	The petitioner has submitted that the rock mass of hill slope area at left and right bank of the Dam axis is highly fractured and thus often loose rocks keep falling from the slope. For safety of the staff and installed machineries at Dam site, protection work is essentially required. During the visit of Dam Safety team in December, 2011, it was suggested that above area should be stabilized by filling loose joints/cavities with concrete and apply shot crete over a layer of wire mesh wherever necessary in the affected stretch.	Since the work is in the nature of O&M, the same is <b>not allowed</b> .
2	3-Phase float cum boost 1200AH, Battery Charger for 220V DC	5.70	The petitioner has submitted that the original arrangement provided 1 No. independent charger for each of the 2 battery banks without any standby options. Any fault in a charger could lead to complete discharging of the battery bank thereby endangering the control and protection system of entire Power House. The new charger with facility of auto change over, will act as backup in case of failure of any of the two chargers.	Since the asset is in the nature, of Spares, the same has <b>not been allowed</b> .
3	Numerical Generator Protection Relay, ABB REG 670 (2 units)	18.14	The petitioner has submitted that these relays are required for Generator Protection and were used to replace the originally installed relays (set of RET 521 + GPU 2000 R). While the RET 521 had got damaged and was not repairable, the GPU 2000 R was not having time sync facility. They were not compatible with LON Protocol. The new relays have combined feature of both the replaced relays and have upgraded the system thereby making it compatible with both LON as well as IEC 61850 open Protocol. The originally installed asset was included in the total E&M package and its acquisition cost is not available. Installation cost is capitalized during 2013-14.	Since the assets are considered necessary for successful and efficient operation of the plant the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations. The de-capitalization value of the old assets is considered under "Assumed Deletions".
4	Numerical Transformer Protection Relay, ABB RET 670 (2 units)	14.69		





5	ION 7300 SERIES 3-Phase Meter, 5 AMP (3 units)	2.48	The petitioner has submitted that these meters were purchased for metering, communication and logging in the newly constructed 400 KV additional GIS Bay.	Since the asset is considered necessary for successful and efficient operation of the plant, the same has been <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
6	Human Machine Interface (HMI) 10 Inch Colour, Model: Panel View, Make: Allen Bradley, Power Supp	1.36	The petitioner has submitted that DAM data is required to be seen in Power House for precise operation of the Power Station. This becomes more important in view of the Tandem operation of Chamera-II and Chamera -III Power Stations. The original scheme provided data transmission and display in form of electrical signals and pygmy lamps which was found to be very ineffective, inaccurate, un-reliable and bulky besides being prone to frequent faults. Further there was no provision of logging, reporting, mimics/views etc. The new system was installed to overcome all such constraints.	Since the asset is minor in nature, the same is <b>not allowed</b> .
7	11KV type metal clad panel comprising 4 nos. 630A VCB, protection system, instrumentation etc.	16.54	The petitioner has submitted that this was purchased for smooth functioning of DG sets of Colony to provide uninterrupted power supply to Office and residential complex.	Since the asset is considered necessary for successful and efficient operation of the plant, the same has been <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations
8	Installation of additional street light poles with cable and accessories.	6.78	The petitioner has submitted that at upstream and downstream periphery area of Dam i.e. approach road to Dam additional street light has been installed for better illumination. The area/road is highly landslide prone and sinks during rainy season. In absence of proper illumination, the approach road to Dam becomes highly dangerous during night.	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
9	Submersible Non-Clog Sewage Pump Set, 3HP, 3-Phase , 415 Volts 50Hz, 13 Mtr. Head, Discharge 350 LPM (4 units)	2.53	The petitioner has submitted that these pumps are used for dewatering of Turbine Pits. The original dewatering scheme used 2 Nos. DC pumps and 2 gravity drains. With ageing of the plant, the leakages in the Turbine Pits have increased thereby rendering the original arrangement insufficient.	Since the asset is considered necessary for successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.



			Further, the use of DC pumps lead to frequent earth faults which were not healthy for the system.	Regulations. The de-capitalization value of the old assets is considered under "Assumed deletions".
10	End Suction Pump of 90 KW , 2-Pole Motor, Head 100 M	4.50	The petitioner has submitted that the fire-fighting system of the Power House uses 2 Nos. Pump for filling up the tank outside the Power house area. The original scheme provided for 2 Nos. Pumps with no standby arrangement. Further, the original pumps were giving frequent troubles. Considering the criticality of the application and high head requirement, the new pump was purchased and installed.	Since the asset is considered necessary for successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations. The de-capitalization value of the old assets is considered under "Assumed deletions"
11	Construction of back up tank for STP at Chamera-II, Karian vide package No. C-259.	5.98	The petitioner has submitted that in case of any breakdown in the existing STP, there is no alternate arrangement to collect sewage because as per environment norms dispose off the sewage directly into the river is not allowed. Keeping this in view, the back-up tank is required to be installed.	Since the work will contribute towards the successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
12	ESR Analyser , HUMAN, HUMASED 22	0.49	The petitioner has submitted that the automated analyzer is a medical laboratory instrument designed to measure different chemicals and other characteristics in a number of biological samples quickly, with minimal human assistance. Previously, the same was being done manually.	Since the expenditure incurred is for the benefit of the employees working in remote areas of the project and in turn would facilitate the successful and efficient operation of the generating station, the expenditure is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
13	Mobile ECG, Model SONOPLUS 3000 DS	1.63	The petitioner has submitted that mobile ECG machine which was not available earlier at the hospital, is used during medical emergency e.g. heart attack at the project site.	
14	46" LCD Narrow Bezel Display	2.97	The petitioner has submitted that originally, a display screen based on CRT Lamp was provided in Power House Control Room for enabling display/continuous monitoring/control/logging of generation parameter This screen had got defective with continuous use and its R&M was not cost-effective due to obsolescence of the technology. Thus the New LCD Screens have been purchased for keeping the system in running condition.	Since the asset is minor in nature, the same is <b>not allowed</b>



15	Outdoor Emergency Light (6 units)	0.62		Since the asset is minor in nature, the same is <b>not allowed</b>
16	Indoor Emergency Light (12 units)	0.73		
17	PTZ Dome camera axis Q6032-E50 WITH 35X Optical Zoom, Arctic temperature control, wall bracket	2.45	The petitioner has submitted that for the purpose of safety and security as per guideline to IB recommendation, CISF, Ministry of Power and Home affair, installation of such camera is essential for monitoring of different locations of power house.	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
18	Automatic Spike Barrier	5.24	The petitioner has submitted that as per the guideline of CISF, installation of spike barrier is required for the safety and security of the power house. Since the work is considered necessary for the safety of the plant, which will facilitate successful and efficient operation of the plant, the same has been <b>allowed</b> under Regulation 9(2)(iv) of Tariff Regulations,2009.	
19	Hydraulic Jack, Cap-50 T, Max Pr. -700Bar, Stroke-Min.-100mm, Hand Pump-Double Acting, Make: Phull, 50T	3.50	The petitioner has submitted that two nos. old and used jack of 50 T capacity were provided by M/s. Jai Prakash Associate for repair & maintenance of Hydro mechanical equipments and gates at the time of commissioning of Project. Since, these 2 nos. jacks were not sufficient to lift the gates and equipment during repair, two additional jacks were purchased.	Since the asset is in the nature of tools & tackles, the same is <b>not allowed</b>
20	Digital Insulation Multi meter, Fluke-1587.	0.65	The petitioner has submitted that there was no multifunctional electrical measuring instrument at HM Dam for checking the Hydro mechanical equipments. That is why Digital Insulation Multi meter was purchased for checking the functioning of HM equipment like Power pack, gantry cranes etc. The petitioner further submitted that previously as and when the instrument was needed, the same was brought from Power House or Electrical Colony Maintenance division.	
21	Construction of security hut cum retiring room at Bakani vide work order 190-93 dated 05.01.2012.	4.12	The petitioner has submitted that initially there was a temporary shed for security personnel deployed at SFT Bakani. The Temporary shed is not considered safe for the security personnel during the night	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful



22	Construction of security hut at surge shaft area vide Package No. C-274 & WO-59/733-38 dated 08.03.2013.	3.33	as they are equipped with the arms. Now, in order to provide better amenities to the security personnel, a permanent security hut was constructed.	and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations
23	Fire Extinguisher - ABC Powder-10 KG (16 units)	0.65	The petitioner has submitted that these fire extinguishers are replacement against Water type Fire Extinguishers which were implanted during the construction by M/s. Jai Prakash. These were essentially required for any emergency due to Fire at the Power Station.	Since the asset is minor in nature, the same is <b>not allowed</b>
24	Fire Extinguisher - ABC Powder-10 KG (16 units)	0.77		
25	Battery Impedance test equipment with accessories.	4.18	The petitioner has submitted that earlier there was no arrangement of measuring battery impedance. Hence this equipment was purchased for testing and maintenance of Battery Bank of Power house.	Since the asset is in the nature of tools & tackles, the same is <b>not allowed</b>
26	High Mast Lighting, Length 16 meter ( 2 units)	5.20	The petitioner has submitted that for safety and security of the employees at project colony, effective illumination is essential.	Since the expenditure incurred is for the benefit of the employees working in remote areas of the project and in turn would facilitate the successful and efficient operation of the generating station, the expenditure is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
27	40 HP Pump only SCT/80/30 Module 1 head 100 meter size 80/100 mm, Model No. SCT/80/30.	1.90	The petitioner has submitted that one additional line of 40 mm dia has been laid from pump house to main storage tank to lift the drinking water from the bore well since the pump is required to lift the drinking water.	
<b>Total claimed</b>		<b>222.97</b>		
<b>Total allowed</b>				<b>96.00</b>

## 2013-14

(₹ in lakh)				
Sl. No.	Assets/works	Actual expenditure incurred/ claimed	Justification submitted by the petitioner	Remarks for admissibility
1	Buildings Containing GPM	2.06	The petitioner has submitted that the additional sales tax amount in respect of the contracts for execution of Chamera H. E. Project Stage-II by JPIL was settled during the year 2013-14.	Since the expenditure is towards balance payment for approved work, the same has been <b>allowed</b>
2	Dam & Barrages(1a)	2.82		
3	Power Tunnels and Pipelines (1a)	13.02		
4	Penstocks	0.43		



5	Tailrace tunnels and pipelines (1a)	2.34		
6	Hydro mechanical Works- Dams and Barrages	1.19		
7	Hydro mechanical works-Tunnels and Canals	0.60		
8	Hydro mechanical Works -Tail Race including draft tube gates	0.07		
9	Control room for CISF near main gate of CPS-II Colony	4.07	The petitioner has submitted that there is only one small security check post near the main gate. The control room is required with facilities of modern gadgetry which will function as emergency control room during any eventuality/natural calamities.	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful and efficient operation of the plant, the same is <b>allowed</b>
10	Providing fencing around CISF qtr guard at CPS-II Karian	11.15	The petitioner has submitted that the existing arrangements are unsafe & vulnerable from security point of view. Therefore, the safety of CISF quarter guard needs to be strengthened by erecting double fencing as per the norms and design provided by CISF.	under Regulation 9(2)(iv) of the 2009 Tariff Regulations
11	Numerical Generator Protection Relay, ABB REG 670 (2 units)	1.10	The petitioner has submitted that the expenditure is towards balance payment for already approved work/assets.	Since the expenditure on the asset (allowed in 2012-13) is towards balance payment for approved work, the same has been <b>allowed</b> .
12	Numerical Transformer Protection Relay, ABB RET 670 (2 units)	0.66		
13	2000 AMP, LT panel with ACB and metering	2.58	The petitioner has submitted that, to enhance safety of underground Power Houses, Disaster Management Plan has been suggested which envisages installation of independent power supply panels for dedicated pumps to be installed for the scheme. The subject panel has been purchased for installation under this plan.	Since the asset is considered necessary for successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations. The de-capitalization value of the old assets is considered under "Assumed deletions"



14	Submersible Motor Pump (05 HP & 10 Stages) (2 units)	1.35	The petitioner has submitted that these pumps are used for dewatering of Turbine Pits. The original dewatering scheme used 2 Nos. DC pumps and 2 gravity drains. With ageing of the plant, leakages in the Turbine Pits have increased thereby rendering the original arrangement insufficient. Further, these DC pumps lead to frequent earth faults which were not healthy for the system.	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations
15	Portable DGA Measuring Instrument -GE-KELMAN, Transport-X	33.42	Portable Dissolved Gas Analysis instrument is used for diagnostic testing of the transformer oil. Total 10 nos Generator Transformers are installed in Power house for step up of generated voltage. Their regular maintenance and diagnostic testing is required to ensure healthiness of the system. This becomes more important with the ageing of the equipment. Till now the transformer samples were being collected and sent to various laboratories. This method is time consuming and may not ensure correct diagnostics due to time elapsed between sample testing and actual testing. In house facility for diagnostic testing was required.	Since the asset is in the nature of tools & tackles, the same is <b>not allowed</b>
16	Acoustic treatment of Simpower DG Set at Dam site	8.47	The petitioner has submitted that a 400KVA DG set was provided by M/s. Jay Prakash Associate during commissioning of the project and installed at ground floor of Dam Control Room building adjacent to control room. During failure of power supply, standby power supply is provided by this DG set which creates unbearable sound for which acoustic (soundproof) treatment of this DG was necessary as per Central Pollution Control Board norms.	Since the expenditure is in compliance with the directions of the of the Himachal Pradesh Pollution Control Board, the same is <b>allowed</b> in under Regulation 9(2)(ii) of the 2009 Tariff Regulations.
17	Construction of RCC slab at back up tank for sewerage treatment plant	5.63	The petitioner has submitted that for the safety point of view the backup tank is required to be covered with RCC slab.	Since the asset is in the nature of O & M, the same is <b>not allowed</b>
18	Swaraj Mazda Prestige WT 49 TC Dual Cap Wheel Base 3335 MM Pickup 5PLUS1 Seats HP-73-3416	7.81	The petitioner has claimed these vehicles under replacement.	Since the asset is considered necessary for successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff





19	TATA Star Bus (40+1 SEATER) HP-73/3371	14.42		Regulations. The de-capitalization value of the old assets is considered under "Assumed deletions"
20	Hardware Firewall & IPS device in HA mode with accessories, Cyberoam, CR35ING	1.01	The petitioner has submitted that with system advancement and implementation of ERP, dependency on the Internet has increased manifolds in the last few years. To facilitate fast connectivity, C.O. IT Wing, vide letter No. NH/IT&C/11/2(A)/ 2012/1685 dated 20.11.2012 has suggested & accorded technical approval for providing 2Mbps Internet Leased Line with adequate protection against cyber security threats using a suitable Firewall device/Proxy between NHPC LAN and Internet Leased Line.	Since the asset is minor in nature, the same is <b>not allowed</b>
21	Network Storage device 4 TB, BUFFALO TS5400D	0.71	The petitioner has submitted that additional storage device is required for augmenting the CCTV recording facility for more than 90 days, as per IB recommendation and CISF.	Since the asset is minor in nature, the same is <b>not allowed</b>
22	Network Storage device 8TB, BUFFALO TS5400D	0.96		
23	Transasia chem touch semi automated clinical chemistry analyzer , erba diagnostics Mannheim GMBH	5.50	The petitioner has submitted that these medical instruments are required for effective investigation of Blood samples of the patients of project and local area, which are at present not available in hospital.	Since the expenditure incurred is for the benefit of the employees working in remote areas of the project and in turn would facilitate the successful and efficient operation of the generating station, the expenditure is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations.
24	Transasia erba lisa scan microplate reader	3.09		
25	Transasia erba lisa wash microplate washer	2.89		
26	5 KVA Online UPS	0.53	One no 5 kVA UPS is installed in server room of CPS-II in the year 2007 for providing power backup for all the equipment installed in the server room. Keeping in view the criticality of EDP equipment /LAN / Internet connectivity, it is proposed to install another UPS of 5 KVA capacity that will act as back-up/Stand by ensuring 100% uptime for the system	Since the asset is minor in nature, the same is <b>not allowed</b>





27	Construction of driver room in VIP guest house, CPS-II	2.09	The petitioner has submitted that there was no proper space for drivers in the VIP Guest House. As a result, during the visit of high officials, serious inconveniences were being faced by the drivers. Keeping the above in view, a driver room has been constructed in VIP Guest House.	Since the expenditure incurred is for the benefit of the employees working in remote areas of the project and in turn would facilitate the successful and efficient operation of the generating station, the expenditure is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations
28	GPS Antenna of Seismograph (CMG-3ESP)	0.13	The petitioner has submitted that the previous antenna of seismograph was damaged due to landslides from the adjacent hill slope and thus required to be replaced.	Since the asset is minor in nature, the same is <b>not allowed</b>
29	Submersible Non -Clog Pump, 35 HP, 3-Phase, 415 Volts,50HZ, 20 mtr head, Discharge 4500 LPM, with cont (2units)	7.84	The petitioner has submitted that the pumps were purchased for the purpose of dewatering from the de-stilling basin of Dam for muck/boulder removal work and other misc activities.	Since the asset/work is considered necessary for the safety & security of the plant and will facilitate successful and efficient operation of the plant, the same is <b>allowed</b> under Regulation 9(2)(iv) of the 2009 Tariff Regulations
	<b>Total claimed</b>	<b>137.94</b>		
	<b>Total allowed</b>			<b>95.55</b>

### Deletions

16. The following year-wise expenditure has been de-capitalized by the petitioner on account of Sale of Assets/Assets written off without replacement. The details of deletions claimed are as follows:

	(₹ In lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Deletion of assets on account of assets written off/without replacement	(-) 12.33	(-) 275.05
Deletion of assets on account of assets sold off	0.00	(-) 6.86
<b>Total</b>	<b>(-)12.33</b>	<b>(-) 281.91</b>

17. As the corresponding assets do not render any useful service in the operation of the generating station, the de-capitalization of the above said expenditure as reflected in the books of accounts has been allowed for the purpose of tariff.



**Exclusions in additions (incurred, capitalized in books but not to be claimed for tariff purpose)**

18. The following year-wise expenditure has been incurred by the petitioner on replacement of minor assets, purchase of capital spares, purchase of miscellaneous assets, additions on inter-unit transfers, minor assets, etc.,

	(₹ in lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Not projected but capitalized due to actual site requirements (not being claimed for add-cap/ Under Exclusion category)	627.05	640.69
Inter Unit Transfer	9.77	2.69
<b>Total</b>	<b>636.81</b>	<b>643.39</b>

19. The expenditure incurred towards procurement/replacement of minor assets and procurement of capital spares after the cut-off date is not permissible in terms of the 2009 Tariff Regulations. Accordingly, the petitioner has considered these additions under exclusion category. As such, the exclusions of the positive entries under the head are in order and are allowed.

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

20. The petitioner has de-capitalized expenditure in books of accounts pertaining to capital spares, minor assets such as computers, office equipment, furniture, fixed assets of minor value less than ₹5000, as these are not in use on account of these assets becoming unserviceable/obsolete and also made deletion on account of inter-unit transfer of minor assets, as under:

	(₹ in lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Deletion under exclusion category (deletion for minor assets/ tools/ tackles etc. not considered by Commission for additional capitalization)	(-) 28.47	(-) 0.36
Consumption of capital spares (deletion not claimed/under exclusion category)	(-) 76.81	(-) 216.63
Inter Unit Transfer	(-) 1.77	(-) 3.40
<b>Total</b>	<b>(-) 107.06</b>	<b>(-) 220.38</b>

21. The petitioner has prayed that the negative entries may be ignored/ excluded for the purpose of tariff as the corresponding positive entries for purchase of such assets are not being allowed for the purpose of tariff in terms of the provisions of the 2009 Tariff Regulations. In



support of this, the petitioner has referred to the observations of the Commission in order dated 7.9.2010 in Petition No.190/2009 as under:

*“20. After careful consideration, we are of the view that the cost of minor assets originally included in the capital cost of the projects and replaced by new assets should not be reduced from the gross block, if the cost of the new assets is not considered on account of implication of the regulations. In other words, the value of the old assets would continue to form part of the gross block and at the same time the cost of new assets would not be taken into account. The generating station should not be debarred from servicing the capital originally deployed on account of procurement of minor assets, if the services of those assets are being rendered by similar assets which do not form part of the gross block.”*

22. The respondent, BRPL vide its reply dated 30.12.2015 has submitted that the minor assets/spares which are de-capitalized is required to be adjusted in the capital cost as per proviso under Regulation 7(1)(c) of the 2009 Tariff Regulations. It has also submitted that the petitioner has not deleted this de-capitalization from the capital cost (as in Annexure-II to Form-9) and hence not complied with the express provisions of the 2009 Tariff Regulations, but has only adjusted the additional capitalization not to be claimed (nature of minor assets) with the de-capitalization mentioned, thereby not giving full play to the said proviso. The respondent has pointed out that the order of the Commission dated 20.4.2011 in Petition No.183/2009 disallowing NTPC to retain the capital value of the assets like wagons which were earlier de-capitalized in the books of accounts have been affirmed by the Tribunal vide its judgment dated 2.1.2013 in Appeal No. 84/2011 and is applicable in the instant case. Accordingly, the respondent has stated that the order dated 7.9.2010 followed by the petitioner is not applicable on this issue and the same may be rejected by the Commission.

23. We have examined the matter. It is noticed that the provisions of both the 2004 and the 2009 Tariff Regulations provide that the expenditure on minor items/assets, tools and tackles etc procured after the cut-off date shall not be considered for additional capitalization for determination of tariff. It is observed that the judgment of the Tribunal in NTPC case pertained to wagons which are capital assets and are permitted to be capitalized as per the regulations. In the judgment, the Tribunal had observed that since the wagons had been de-capitalized, the gross value of the de-capitalized wagons was to be deducted from the capital cost. Para 10 of the judgment is quoted as under:



*“10. These Regulations would indicate that the capital cost of generating station is a cost which was incurred in commissioning the plant and any other additional expenditure made for efficient running of the plant. The tariff of the Generating Stations is determined on cost plus basis meaning thereby that any capital expenditure incurred which will enhance the efficiency of the plant will be capitalized and the tariff will be determined accordingly. Similarly, if any asset is taken out of service, then its gross value will be deducted from the capital cost of the plant. The Appellant has claimed to retain the de-capitalized amount in respect of wagons and capitalized spares during the period 2008-09. If the equipment is not rendering any service, the same cannot be retained in the capital cost for the purpose of tariff as no benefit out of the same is being given to the beneficiaries.”*

24. The present case is distinguishable from the facts of the case which was decided in the said appeal. The minor assets are not considered as capital assets and are not permitted to be capitalised after the cut-off date. In our view, since the cost of new assets would not be taken into account by implication of the regulations, the value of old assets should be permitted to continue to form part of the gross block. In other words, if the cost of the new assets is not considered on account of implication of the regulations, the cost of minor assets originally included in the capital cost of the projects and replaced by new assets should not be reduced from the gross block. The generating station should not be debarred from servicing the capital originally deployed on account of procurement of minor assets, if the services of these assets are being rendered by similar assets which do not form part of the gross block. In this background and in line with the decision of the Commission in order dated 7.9.2010, the negative entries corresponding to the deletion of minor assets are allowed to be excluded/ ignored for the purpose of tariff.

25. The petitioner has excluded amounts of (-)₹76.81 lakh and (-)₹216.63 lakh for the year 2012-13 and 2013-14 respectively for de-capitalization of capital spares. As regards the prayer of the petitioner for exclusion of negative entries corresponding to de-capitalization of capital spares, it is observed that the expenditure on capital spares are not allowed to be capitalized after the cut-off date in terms of the 2009 Tariff Regulations. While the recovery of expenditure on capital spares is allowed through O&M expenses on consumption, the recovery of additional expenditure on minor assets beyond the cut-off date is neither allowed to be capitalized nor permissible under O&M expenses. Hence, the observations of the Commission in order dated 7.9.2010 cannot be made applicable in respect of de-capitalization of spares. Accordingly, the claim of the petitioner for exclusion of negative entries arising out of de-capitalization of capital spares is justifiable provided that the de-capitalized spares are the ones which were not considered in the capital



base for the purpose of tariff in the year of capitalization. On verification of the details in the Petition filed by the petitioner for the period 2009-12 and this petition, it is observed that the capital spares de-capitalized in books during the period 2012-13 and 2013-14 are the ones which were not allowed in the capital cost for the purpose of tariff. In other words, positive entries arising out of their purchase were also excluded/ ignored for the purpose of tariff. In view of the above discussions, the amounts have been allowed to be excluded/ ignored for the purpose of tariff. The exclusion of negative entries arising due to inter unit transfer of minor assets are allowed as the capitalization of these minor assets are not allowed after the cut-off date. Accordingly, the following amounts have been excluded/ ignored for the purpose of tariff as under

	<i>(₹ in lakh)</i>	
	<b>2012-13</b>	<b>2013-14</b>
Deletion under exclusion category (deletion for minor assets/ tools/ tackles etc. not considered by Commission for additional capitalization)	(-) 76.81	(-) 216.63
Consumption of capital spares (deletion not claimed/under exclusion category)	(-) 28.47	(-) 0.36
Inter Unit Transfer	(-) 1.77	(-) 3.40
<b>Total</b>	<b>(-) 107.06</b>	<b>(-) 220.38</b>

### **Assumed Deletions**

26. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified is allowed for the purpose of tariff provided that the capitalization of the said asset is followed by the de-capitalization of the original value of the old asset. However, in certain cases where de-capitalization is affected in books during the following years, to the year of capitalization of new asset, the de-capitalization of the old asset for the purpose of tariff is shifted to the very same year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed deletion". The amounts considered by the petitioner under this head are as under:

<i>(₹ in lakh)</i>	
<b>2012-13</b>	<b>2013-14</b>
(-) 4.23	(-) 2.41

### **2012-13 and 2013-14**

27. It is observed that against the expenditure for replacement of assets/works during 2012-13 and 2013-14, the de-capitalization value at the rate of 10% of the value of new asset these assets has been considered by the petitioner, except for Replacement of old PBX during 2012-13.



Considering the fact that the plant is only nine years old, the de-capitalized value furnished by the petitioner for these assets appear to be on the lower side. Therefore, as per consistent methodology adopted by the Commission for arriving at the fair value of the de-capitalized asset, the escalation rate of 5 % per annum from COD has been considered in order to arrive at the gross value of old asset in comparison to the cost of new asset. Further, the deletion of an amount of (-) ₹ 0.30 lakh for LCD narrow bezel display and (-) ₹ 0.07 lakh for fire extinguisher during 2012-13 and deletion of an amount of (-) ₹ 0.01 lakh for GPS antenna of seismograph during 2013-14 has not been considered since the capitalization of these assets has not been allowed. Accordingly, the assumed deletions claimed and allowed for the purpose of tariff are detailed as under:

(₹ in lakh)

Assets/works	Amount of capitalization claimed	De-capitalization claimed	De-capitalization considered
<b>2012-13</b>			
Replacement of old paradigm plus PBX	10.14	(-) 0.26	(-) 6.54
Numerical Generator protection relay, ABB REG 670 (2 units)	18.14	(-) 1.81	(-) 11.70
Numerical transformer protection relay, ABB RET 670 (2 units)	14.69	(-) 1.47	(-) 9.47
Submersible Non-Clog sewage pump set, 3 HP, 3 phase, 415 volts 50hz, 13 mtr head, discharge 350 lpm (4 units)	2.53	(-) 0.25	(-) 1.63
46" LCD NARROW BEZEL DISPLAY (capitalization of asset not allowed)	2.97	(-) 0.30	0.00
FIRE EXTINGUISHER-ABC POWDER-10 KG (16 units) (capitalization of asset not allowed)	0.65	(-) 0.07	0.00
	0.77	(-) 0.08	0.00
<b>Total</b>	<b>49.90</b>	<b>(-) 4.23</b>	<b>(-) 29.33</b>
<b>2013-14</b>			
NUMERICAL GENERATOR PROTECTION RELAY, ABB REG 670 (2 Units)	1.10	(-) 0.11	(-) 0.68
NUMERICAL TRANSFORMER PROTECTION RELAY, ABB RET 670 (2 Units)	0.66	(-) 0.07	(-) 0.41
SWARAJ MAZDA PRISTAGE WT 49 TC DUAL CAP WHEEL BASE 3335 MM PICKUP 5PLUS1 SEATS HP-73-3416	7.81	(-) 0.78	(-) 4.80
TATA STARBUS (40+1 SEATER) HP-73/3371	14.42	(-) 1.44	(-) 8.85
GPS ANTENNA OF SEISMOGRAPH (CMG-3ESP) (capitalization of asset not allowed)	0.13	(-) 0.01	0.00
<b>Total</b>	<b>24.13</b>	<b>(-) 2.41</b>	<b>(-) 14.73</b>



## Un-discharged and discharge of Liabilities

28. The petitioner has submitted the details of the un-discharged liabilities and the discharge of liabilities during 2012-14 as under:

	(₹ in lakh)	
	2012-13	2013-14
Un-discharged liability in additional capitalization during 2009-14	17.55	16.59
Liability as on 31.3.2009 discharged during the year	0.00	45.97
Liability discharged during the year in additional capitalization during 2009-14	4.56	17.86

29. The un-discharged liabilities and discharge of liabilities as above have been considered for working out the admissible additional capital expenditure for the period 2012-14. Accordingly, the actual additional capital expenditure allowed for the period 2012-14 for the purpose of tariff is as under:

	(₹ in lakh)	
	2012-13	2013-14
Capitalization against works due to difference in allowed and actual capitalization	10.14	0.00
Not projected/not allowed but capitalized due to actual site requirements (being claimed for add-cap)	96.00	95.55
<b>Total additions allowed (a)</b>	<b>106.14</b>	<b>95.55</b>
Deletions allowed (b)	(-)12.33	(-) 281.91
Assumed deletions considered (c)	(-) 29.33	(-)14.73
<b>Total additional capital expenditure allowed before un-discharged/ discharged liabilities (d)=(a)+(b)+(c)</b>	<b>64.48</b>	<b>(-) 201.09</b>
Undischarged liability for the add cap 2009-14 (e)	17.55	16.59
Liability discharged during the year in respect of additional capitalization in 2009-12 (f)	4.56	17.86
Liability existed as on 31.3.2009 and discharged during the year (g)	0.00	45.97
<b>Additional Capital Expenditure allowed (h)=(d)-(e)+(f)+(g)</b>	<b>51.49</b>	<b>(-) 153.85</b>

## Capital cost for 2012-14

30. As stated, the capital cost of ₹ 200208.46 lakh has been considered as the opening capital cost as on 1.4.2012 for revision of tariff for 2012-14. Accordingly, the capital cost considered for the purpose of the tariff is as under is as under:

	(₹ in lakh)	
	2012-13	2013-14
Opening capital cost as on 31.3.2012	200208.46	200259.95
Additional capital expenditure allowed	51.49	(-)153.85
<b>Closing capital cost</b>	<b>200259.95</b>	<b>200106.10</b>





### Debt-Equity Ratio

31. The petitioner has submitted that the additional capital expenditure has been financed through internal resources. In terms of the Regulation 12 of the 2009 Tariff Regulations, debt equity ratio of 70:30 has been considered on the admitted additional capital expenditure for the purpose of tariff.

### Return on Equity

32. In terms of Regulation 15 (3) of the 2009 Tariff Regulations, the Return on Equity is computed as under:

	(₹ in lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Gross Notional Equity	61381.74	61397.19
Addition due to Additional Capitalization	15.45	(-) 46.16
Closing Equity	61397.19	61351.03
Average Equity	61389.46	61374.11
Return on Equity (Base Rate )	15.750%*	16.500%
Tax rate for the year	20.008%	20.961%
Rate of Return on Equity	19.689%	20.876%
<b>Return on Equity</b>	<b>12086.97</b>	<b>12812.46</b>

\*Base rate for April- December 2012 @ 15.5% and for January-March 2013 @16.5%

### Interest on Loan

33. The opening gross normative loan as on COD of each unit has been arrived at in accordance with Regulation 16 of the 2009 Tariff Regulations. The weighted average rate of interest has been worked out on the basis of the actual loan portfolio of the respective year as applicable to the project. The repayment for the period 2009-14 has been considered equal to the depreciation allowed for the respective year. Interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest as under:

	(₹ in lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Gross Normative Loan	138615.30	138651.35
Cumulative Repayment	86156.70	96641.46
Net Loan-Opening	52458.60	42009.89
Repayment during the year	10322.89	10323.62
Addition due to Additional Capitalization	36.04	(-) 107.70
Net Loan-Closing	42171.75	31740.44
Average Loan	47315.18	36956.10
Weighted Average Rate of Interest on Loan	8.023%	8.498%
<b>Interest on loan</b>	<b>3795.91</b>	<b>3140.49</b>



## Depreciation

34. The weighted average rate of depreciation of 5.155% and 5.157% for the year 2012-13 and 2013-14 respectively have been considered for the calculation of depreciation. Accordingly, depreciation has been computed as under:

	(₹ in lakh)	
	2012-13	2013-14
Opening Gross Block	200208.46	200259.95
Admitted Additional capital expenditure	51.49	(-) 153.85
Closing gross block	200259.95	200106.10
Average gross block	200234.21	200183.03
Rate of Depreciation	5.236%	5.236%
Depreciable Value	179735.84	179689.78
Remaining Depreciable Value	95967.29	85617.90
<b>Depreciation</b>	<b>10322.89</b>	<b>10323.62</b>

## O & M Expenses

35. O & M expenses as allowed in order dated 27.1.2015 in Petition No. 231/GT/2013 has been considered as under:

(₹ in lakh)	
2012-13	2013-14
7786.50	8231.89

## Interest on Working Capital

36. The petitioner is entitled to claim interest on working capital as per Regulation 18 of the 2009 Tariff Regulations. The components of the working capital and the petitioner's entitlement to interest thereon are discussed hereunder.

### **(i) Receivables**

*As per Regulation 18(1) (c) (i) of the 2009 Tariff Regulations, receivables as a component of working capital are equivalent to two months" of fixed cost. In the tariff being allowed, receivables have been worked out on the basis of "2 months" fixed cost.*

### **(ii) Maintenance spares**

*Regulation 18 (1) (c) (ii) of the 2009 Tariff Regulations provides for maintenance spares @ 15% per annum of the O & M expenses as part of the working capital. The value of maintenance spares has accordingly been worked out.*

### **(iii) O & M expenses**

*Regulation 18(1) (c) (iii) of the 2009 Tariff Regulations provides for operation and maintenance expenses for one month to be included in the working capital. The petitioner has claimed O&M expenses for 1 month of the respective year. This has been considered in the working capital.*

### **(iv) Rate of interest on working capital**

*In accordance with clause (3) of Regulation 18 of the tariff regulations, as amended, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1st April of the year*



in which the generating station or a unit thereof is declared under commercial operation, whichever is later. Accordingly, SBI PLR of 12.25% as on 1.4.2009 has been considered in for working out Interest on Working Capital.

37. Accordingly, Interest on Working Capital has been calculated as under:

	(₹ in lakh)	
	2012-13	2013-14
Maintenance Spares	1167.98	1234.78
O & M expenses	648.88	685.99
Receivables	5821.33	5911.32
<b>Total</b>	<b>7638.18</b>	<b>7832.09</b>
<b>Interest on working capital @ 12.25%</b>	<b>935.68</b>	<b>959.43</b>

### Annual Fixed Charges

38. The annual fixed charges allowed for generating station for the period 2012-14 are summarized as under:

	(₹ in lakh)	
	2012-13	2013-14
Return on Equity	12086.97	12812.46
Interest on Loan	3795.91	3140.49
Depreciation	10322.89	10323.62
Interest on Working Capital	935.68	959.43
O & M Expenses	7786.50	8231.89
<b>Annual Fixed Charges</b>	<b>34927.95</b>	<b>35467.89</b>

39. The difference between the annual fixed charges recovered by the petitioner and the annual fixed charges determined by this order as above shall be adjusted in terms of Clause (6) of Regulation 6 of the 2009 Tariff Regulations.

### Determination of Annual Fixed Charges for the period 2014-19

40. As stated, the petitioner in this petition has also prayed for the determination of annual fixed charges of the generating station for the period 2014-19 in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	12828.17	12855.65	12880.43	12880.43	12880.43
Interest on Loan	2258.34	1823.83	1157.75	893.97	630.19
Depreciation	10336.55	10359.18	2420.89	2420.89	2420.89
Interest on Working Capital	986.06	1003.84	834.76	858.98	885.21
O & M Expenses	7256.54	7738.66	8252.82	8801.14	9385.89
<b>Annual Fixed Charges</b>	<b>33665.66</b>	<b>33781.17</b>	<b>25546.65</b>	<b>25855.41</b>	<b>26202.61</b>



41. In response to the directions of the Commission, the petitioner has submitted additional information and has served copies of the same on the respondents. The respondents UPPCL and BRPL have filed replies to the petition and the petitioner has filed its rejoinder to the said replies filed by the respondents. Based on the submissions of the parties and the documents available on record, we proceed to determine the tariff of the generating station for the period 2014-19 as stated in the subsequent paragraphs.

### **Capital Cost**

42. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 provides as under:

*“9(3) The Capital cost of an existing project shall include the following:*

- (a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*
- (b) xxxx*
- (c) xxxx*

43. The closing capital cost considered by the Commission as on 31.3.2014 in this order is ₹ 200106.10 lakh. This amount has been considered as the opening capital cost as on 1.4.2014 for computation of tariff for the period 2014-19.

### **Actual/ Projected Additional Capital Expenditure during 2014-19**

44. Clause (3) of Regulation 7 of the 2014 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including any additional capital expenditure already admitted upto 31.3.2014 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-15 to 2018-19.

45. Regulation 14 (3) of the 2014 Tariff Regulations, provides as under:

*“14(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may 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 of law;*



- (ii) Change in law or compliance of any existing law;
- (iii) Any expenses to be incurred on account of need for higher security and tem of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work;
- (v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;
- (vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;
- (vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;
- (viii) 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) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;
- (ix) 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 due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and
- (x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

*Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, 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. 1.4.2014:*

*Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:*

*Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.”*

46. The year-wise breakup of the projected additional capital expenditure claimed by the petitioner vide affidavit dated 10.7.2015 is as under:



	<i>(₹ in lakh)</i>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Proposed additional capital expenditure on gross basis	70.52	240.26	565.85	0.00	0.00
Proposed De-capitalization	6.60	11.79	0.00	0.00	0.00
Net proposed additional capital expenditure	<b>63.92</b>	<b>228.47</b>	<b>565.85</b>	<b>0.00</b>	<b>0.00</b>

47. The respondent, BRPL has submitted that the claim of the petitioner for projected additional capital expenditure under Regulation 14(3)(viii) is required to be made under Regulation 14(3)(vii) of the 20104 Tariff Regulations, which require that the claim for expenditure for replacement of assets which are necessary for successful and efficient operation of the plant shall be substantiated with technical justification duly supported by documentary evidence like test results carried out by independent agency in case of deterioration of the assets. We have examined the matter. The petitioner has claimed capitalization of the expenditure under Regulation 14(3)(viii) which also provides for capitalization of expenditure incurred due to additional work which has become necessary for successful and efficient operation of plant. The submission of the respondent, BRPL that Regulation 14(3)(viii) should be read with Regulation 14(3)(vii) in respect of expenditure incurred on replacement assets and that the same should be supported by documentary evidence like test results carried out by independent agency in case of deterioration of the assets, is also not acceptable. In our view, the requirement of documentary evidence like test results etc., carried out by independent agency will be necessary in case of assets which have deteriorated prior to the expiry of useful life and accordingly sought to be replaced. In the instant case, these assets are being replaced on account of obsolescence /deterioration etc., after expiry of its useful life in consideration of year-wise assets which were put to use. However, there may be some assets which are serviceable even after the expiry of their useful life and should be put to use instead of seeking their replacement in a routine manner. In our view, the petitioner should support its claim either on the basis of the certificate by the OEM or its technical committee to the effect that the subject assets cannot be kept in service on account of its obsolescence or it being beyond economic repair. Though we are allowing capitalization of these assets under Regulation 14(3)(viii) of the 2014 Tariff Regulations, we direct that the petitioner shall place on record the necessary certificate from the OEM or its technical committee at the



time of truing-up of tariff . Similar approach shall be adopted in other cases where additional capitalization has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.

48. Accordingly, based on the submissions of the parties and the documents available on record, the claims of the petitioner for the period 2014-19 are considered and allowed on prudence check, after reduction of the gross value of old assets, wherever necessary, as detailed in the subsequent paragraphs.

### **2014-15**

(₹ In lakh)

<b>Sl. No.</b>	<b>Assets/ Works</b>	<b>Amount Claimed</b>	<b>Justification submitted by the petitioner</b>	<b>Remarks on admissibility</b>	<b>Amount Allowed</b>
1	Construction of stores at Dam site for Civil/HM/Elect complex	9.67	The petitioner has submitted that, to avoid deterioration and to ensure the availability and fast retrieval of materials at dam for Civil/HM/Elect complex, a store building is essentially required at DAM site. The existing central store is app. 20 km away from DAM site and road connecting both the locations is prone to heavy landslides and blockage in rainy as well as winter seasons. Therefore, all the essential & critical materials will be stored in this building to meet out any of the emergent requirement of DAM site. This will improve the performance of the Dam/Power Station.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.	9.67
2	Construction of Dining hall and Kitchen for CISF	16.35	The petitioner has submitted that, dining hall and Kitchen is to be constructed for CISF unit. As per the MOU signed between NHPC Ltd and CISF, dining hall and kitchen shall be provided by NHPC Ltd to CISF unit at CPS-II, Karian. This is related to the security of the Power Station.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the expenditure is necessary for the benefit of the employees working in remote areas of the project and in turn will facilitate	16.35





				the successful and efficient operation of the generating station.	
3	Construction of 1 nos. Security huts (Retiring rooms) at TRT	4.21	The petitioner has submitted that, security personals have been deployed for security of TRT Outlet round the clock. There is no permanent structure for security personnel to stay or take rest.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the expenditure is necessary for the benefit of the employees working in remote areas of the project and in turn will facilitate the successful and efficient operation of the generating station.	4.21
4	Construction of Store building at Power House.	36.49	The petitioner has submitted that, in order to improve the efficiency and performance of the power station, proper storage of major components e.g. under water parts, tools and tackles, one no. store building is required at power house portal. The existing store building is app. 05 Km away from power house area and approach road is prone to landslides and blockage due to snow in rainy and winter seasons. Again the major spare parts are being stored at service bay which is resulting in less availability of space to carry-out the routine as well as major maintenance of VT drainage and dewatering pumps etc. All the major and critical components, tools & tackles will be stored in the store building at power house end to meet any emergent requirement of power	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.	36.49



			house.		
5	Fibre Boat for Dam site	3.80	The petitioner has submitted that, the existing boat already damaged and has completed its life. The bottom side of boat got damaged severely and cannot be used safely. Therefore a new boat is essentially required for survey work of dam reservoir.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹6.60 lakh.	<b>(-) 2.80</b> (3.80-6.60)
<b>Total Claimed</b>		<b>70.52</b>			
<b>Total Allowed (after de-capitalization)</b>					<b>63.92</b>

### 2015-16

(₹ in lakh)

Sl. No.	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Purchase of Automatic Gauge discharge recorder	2.60	The petitioner has submitted that, in order to optimize the generation, proper monitoring of river inflow is required for better scheduling procedure. As per the suggestion of Dam Safety Team a Gauge discharge curve is required for preparation of tail rating curve. Due to frequent variation of flow in case of machine shutdown/start, Gauge - discharge curve is not possible. Therefore it has been decided that Automatic Gauge discharge curve may be procured for its installation at the base of Karian-Bharian Bridge.	<b>Not allowed</b> as the expenditure claimed on the asset is in the nature of tools and tackles	<b>0.00</b>



2	Purchase of oil mist Exhauster	15.00	<p>The petitioner has submitted that, in that, in order to enhance the life of stator windings and rotor poles Oil mist exhauster are required to be installed in all the three generating units. This will collect oil fumes from the bearings so that the cleanliness of the stator winding, rotor poles can be ensured. The oil fumes deposits over the stator windings and rotor poles and a portion of fumes condensate in contact with the cold surfaces. As a result dust particles get deposits on the stator winding and rotor poles which in turn affects the cooling of stator windings and rotor poles. The fumes when converted into the liquid form, fall into the turbine pits and pollute the water. If oil mist exhauster is installed in LGB housing of all the three units than the wastage of costly turbine oil and pollution of water may also be avoided in addition to healthiness/cleanliness of stator winding.</p>	<p><b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.</p>	<b>15.00</b>
3	Pendant operated EOT crane for New store building at Power House	10.00	<p>The petitioner has submitted that, in order to improve the work efficiency in turn smooth operation of the power station pendant operated EOT crane is required for new store building. Considering the high lead times in delivery of critical items /under water components of the Units, such items are kept in ready stock at Power House. Till now, these items were being stored in service</p>	<p><b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.</p>	<b>10.00</b>



			<p>bay and in main stores (located away from Power House). With ageing of the plant the quantity of the required spares is increasing. Storage of bulky spares in service bay is not possible due to space constraints. Handling/transportation of such spares in main store is very difficult. A new building is being constructed at power house portal for storage of such items. One no. pendant operated EOT crane is to be installed in this building for safe handling of such items.</p>		
4	<p>Purchase of DG set 500 KVA - 2 No. along with AMF panel</p>	89.84	<p>The petitioner has submitted that, 1 MVA DG Set is 27 years old and it has completed its stipulated life in years as well as in running hours. This DG set breaks down quite frequently and it has become very difficult to run it economically. As per the finalization of equipment in respect of Chamera-II, 02 Nos. DG set 500 KVA has been planned for installation in place of 01 MVA DG set. As per load pattern the requirement of load during summer season is below 400 KW whereas this demand becomes doubled in winters. During summer season only 500 KVA DG set will meet the requirement whereas both the DG sets will be utilized in winter season. 2 nos. of DG set having individual capacity of 500 KVA are essential to meet power requirement of all the offices, CISF</p>	<p><b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹1.67 lakh.</p>	<p><b>88.17</b> (89.84-1.67)</p>



			installations, TRT, central store, workshop, water supply system, K.V etc.		
5	Purchase of one 400 KVA DG Set for Dam	38.12	<p>The petitioner has submitted that, the existing one no DG Set of 370 KVA has covered its useful life in years and is old. This DG was shifted from Rangit Power Station during commissioning of Chamera Power Station-II.</p> <p>Replacement of this DG set is essential to meet power requirement of DAM &amp; SFT including safety/security of DAM installation during failure of supply from HPSEB feeder. There are frequent tripping of HPSEB feeder during rainy and winter seasons, The restoration of HPSEB supply may take several days when there are major damages in 11 KV system. Therefore, purchase of 370/380/400 KVA DG set is necessary to meet out the power demand of DAM installations.</p>	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹5.20 lakh.	<b>32.92</b> (38.12-5.20)
6	Bolero - 01 Nos	7.20	<p>The petitioner has submitted that, as per the finalization of equipment in respect of Chamera-II, 01 Nos. Bolero is required against the replacement of 02 nos. Gypsy.</p> <p>This vehicle shall be purchased after approval from CMD.</p>	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹0.69 lakh	<b>6.51</b> (7.20-0.69)



7	Motorcycle (Enfield/Equivalent)	1.50	The petitioner has submitted that, the existing 02 nos. motorcycles have almost covered their useful life and due for disposal. These vehicles need replacement with new ones as per O&M strength of equipment.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹0.76 lakh.	<b>0.74</b> (1.50-0.76)
8	Two nos. Gasoline Engine operated power pack each type each for radial Gate-I&II power pack and Radial Gate III & IV power pack.	17.00	The petitioner has submitted that, the existing gasoline operated power pack is old and are not sufficient to lift the load of radial gates during emergency operation. Also existing gasoline operated power pack are in break down condition and are beyond repair, therefore new set is required against replacement of old.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is considered as ₹0.90 lakh.	<b>16.10</b> (17.00-0.90)
9	100 KVA DG set with acoustic enclosure and AMF panel.	10.00	The petitioner has submitted that, 100 KVA DG Set is required to be operate SFT Gate and lightning of SFT cavern during power failure. Earlier temporary provision for power supply during failure was done through DAM DG set. As this temporary arrangement is not reliable during rainy season, landslides and local interruption, a Local power backup source is mandatory to install.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.	<b>10.00</b>
10	Replacement of Drainage VT pumps with submersible pump.	49.00	Originally 3 nos. VT pumps were installed in the drainage system. The frequency of breakdown and consequent routine/breakdown maintenance is high in	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for	<b>46.44</b> (49.00-2.56)



			these pumps which leads to high maintenance cost as well lesser reliability/efficiency of the drainage system. Phased replacement of the VT pumps with submersible pumps is proposed. This will increase the reliability and efficiency of drainage and dewatering system which is quite critical application considering the underground nature of the power house.	efficient operation of the generating station. The gross value of old asset is considered as ₹2.56 lakh.	
<b>Total Claimed</b>		<b>240.26</b>			
<b>Total Allowed (after de-capitalization)</b>					<b>225.88</b>

**2016-17**

(₹ in lakh)

<b>Sl. No.</b>	<b>Assets/ Works</b>	<b>Amount Claimed</b>	<b>Justification submitted by the petitioner</b>	<b>Remarks on admissibility</b>	<b>Amount Allowed</b>
1	Submersible Drainage Pump with panel and pipeline for Disaster Management Programme	150.00	The petitioner has submitted that, for strengthening of drainage system of the underground Power House, and to handle situations like unexpected increase in water leakages, failure of the existing drainage system, natural calamities / flooding etc. a Disaster Management Plan has been proposed. This plan envisages the installation of 1 No. Submersible Drainage Pump with independent power supply source and control panel/pipeline.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.	150.00
2	Fabrication & purchase of additional Draft tube gate Size 5.13x4.6 mtr, 20 ton	58.28	The petitioner has submitted that, considering the underground nature of the Power House and as per requirements of IMS Certification, efficient extraction and	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for	58.28





			filtration of generated fumes is essential to ensure safe, hygienic and healthy working environment. With ageing of the Power House, manifold increase in R&M activities in hydro-turbines is inevitable. Such activities involve substantial welding/grinding works in-situ in areas including spiral casing, draft tube etc. Fume Extraction Systems are required to be purchased and used at work sites.	efficient operation of the generating station.	
3	Purchase, Erection & Commissioning of additional Two nos. Draft tube Gantry crane 35 ton	323.57	As per CEA guidelines dated 27.05.2011 to avoid flooding in the Power House, every power station must have a provision of hoisting arrangement for draft tube gate of each unit for quick closing of draft tube gate in case of high flood. At present, there is only one gantry crane for all the three draft tube gates. Therefore two additional gantry cranes are required so that each gate have its own dedicated gantry crane for each Draft tube.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset is considered necessary for efficient operation of the generating station.	323.57
4	Multipurpose Fire Tender	34.00	The petitioner has submitted that, at present only fire tender is available at power station. As safety of power station is concerned one more fire tender need to be purchased centrally from Corporate Office.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, since the asset/work is considered necessary for efficient operation of the generating station.	34.00
<b>Total Claimed</b>		<b>565.85</b>			
<b>Total Allowed</b>					<b>565.85</b>



### 2017-18 and 2018-19

49. No additional capital expenditure has been claimed by the petitioner for the years 2017-18 and 2018-19.

### Additional capital expenditure allowed for 2014-19

50. Based on the above, the net projected additional capital expenditure allowed for the period 2014-19 is summarized as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Additional Capital Expenditure allowed	70.52	237.66	565.85	0.00	0.00
De-capitalization	6.60	11.78	0.00	0.00	0.00
<b>Net additional capital expenditure allowed</b>	<b>63.92</b>	<b>225.88</b>	<b>565.85</b>	<b>0.00</b>	<b>0.00</b>

51. The un-discharged liabilities for the period 2014-19 are as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
18.00	0.00	0.00	0.00	0.00

52. Taking into consideration the un-discharged liabilities, the projected additional capital expenditure allowed for the purpose of tariff is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Net additional capital expenditure allowed	63.92	225.88	565.85	0.00	0.00
Un-discharged liabilities	18.00	0.00	0.00	0.00	0.00
<b>Additional Capital expenditure allowed</b>	<b>81.92</b>	<b>225.88</b>	<b>565.85</b>	<b>0.00</b>	<b>0.00</b>

### **Capital Cost for 2014-19**

53. As stated, the closing capital cost of ₹200106.10 lakh has been considered as on 31.3.2014 in para 30 of this order. This has been considered as the opening capital cost as on 1.4.2014. Accordingly, the capital cost considered for the purpose of tariff for the period 2014-19 is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	200106.10	200188.02	200413.90	200979.75	200979.75
Additional Capital expenditure allowed	81.92	225.88	565.85	0.00	0.00
Capital Cost as on 31 <sup>st</sup> March of the year	<b>200188.02</b>	<b>200413.90</b>	<b>200979.75</b>	<b>200979.75</b>	<b>200979.75</b>



## Debt-Equity

54. Regulation 19 of the 2014 Tariff Regulations provides as under:

### **“19. Debt-Equity Ratio**

*(1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. 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:*

- i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:*
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:*
- iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.”*

55. Accordingly, the debt-equity ratio of 70:30 has been considered for the purpose of tariff.

## Return on Equity

56. Regulation 24 of the 2014 Tariff Regulations provides as under:

**“24. Return on Equity:** *(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.*

*(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:*

*Provided that*

- i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:*
- ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:*
- iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:*
- iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:*
- v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:*
- vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.*



57. Regulation 25 of the 2014 Tariff Regulations provides as under:

**“Tax on Return on Equity**

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

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

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis.”

58. The Base rate has been grossed up with the MAT rate for the year 2013-14. Accordingly, in terms of the above regulations, Return on Equity has been computed as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Equity	61351.03	61375.61	61443.37	61613.13	61613.13
Addition due to Additional Capitalization	24.58	67.76	169.76	0.00	0.00
Closing Equity	61375.61	61443.37	61613.13	61613.13	61613.13
Average Equity	61363.32	61409.49	61528.25	61613.13	61613.13
Return on Equity (Base Rate)	16.500%	16.500%	16.500%	16.500%	16.500%
Tax rate for the year	20.961%	20.961%	20.961%	20.961%	20.961%
Rate of Return on Equity	20.876%	20.876%	20.876%	20.876%	20.876%
<b>Return on Equity</b>	<b>12810.21</b>	<b>12819.84</b>	<b>12844.64</b>	<b>12862.36</b>	<b>12862.36</b>

59. The petitioner is however directed to submit the effective tax rates along with the tax Audit report for the period 2015-19 at the time of revision of tariff based on truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.



## Interest on Loan

60. Regulation 26 of the 2014 Tariff Regulations provides as under:

**“26. Interest on loan capital:** (1) *The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.*

(2) *The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.*

(3) *The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization of such asset*

(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 depreciation allowed for the year or part of the year.*

(5) *The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized: 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 refinancing.*

(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 beneficiaries or the long term transmission customers /DICs 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 opening gross normative loan as on COD of each unit has been arrived at in accordance with Regulation 26 of the 2014 Tariff Regulations. 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. The repayment for the period 2014-19 has been considered equal to the



depreciation allowed for that year. Interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest. The calculations for weighted average rate of interest are enclosed as Annexure-I to this order. As such, Interest on loan for the period 2014-19 is worked out as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	138755.07	138812.42	138970.53	139366.63	139366.63
Cumulative Repayment up to Previous Year	106803.21	117124.97	127454.67	129878.40	132313.71
Net Loan-Opening	31951.86	21687.45	11515.86	9488.23	7052.92
Repayment during the year	10321.76	10329.70	2423.73	2435.31	2435.31
Addition due to Additional Capitalization	57.34	158.12	396.10	0.00	0.00
Net Loan-Closing	21687.45	11515.86	9488.23	7052.92	4617.61
Average Loan	26819.66	16601.65	10502.05	8270.57	5835.27
Weighted Average Rate of Interest on Loan	8.433%	10.896%	10.896%	10.896%	10.896%
<b>Interest on loan</b>	<b>2261.75</b>	<b>1808.91</b>	<b>1144.30</b>	<b>901.16</b>	<b>635.81</b>

## Depreciation

62. Regulation 27 of the 2014 Tariff Regulations provides as under:

### **“27. Depreciation:**

(1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. 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.

(3) 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 station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff: Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

(4) 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.





(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-II 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 the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2014 from the gross depreciable value of the assets.

(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.”

63. The COD of the generating station is 31.3.2004. As the generating station has completed 12 years of operation as on 31.3.2016, the weighted average rate of depreciation calculated in terms of the above regulation is 5.157% and the same has been considered for the years 2014-15 and 2015-16. The remaining depreciable value has been spread over the balance useful life of the project from year 2016-17 onwards till 2018-19. Accordingly, depreciation has been computed as follows:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Block as on 31.3.2014	200106.10	200188.02	200413.90	200979.75	200979.75
Additional capital expenditure during 2014-19	81.92	225.88	565.85	0.00	0.00
Closing gross block	200188.02	200413.90	200979.75	200979.75	200979.75
Average gross block	200147.06	200300.96	200696.83	200979.75	200979.75
Rate of Depreciation	5.157%	5.157%	-	-	-
Depreciable Value	180132.36	180270.87	180627.15	180881.78	180881.78
Balance Useful life of the asset	25.00	24.00	23.00	22.00	21.00
Remaining depreciable value	75891.39	65711.92	55745.84	53576.74	51141.43
<b>Depreciation</b>	<b>10321.76</b>	<b>10329.70</b>	<b>2423.73</b>	<b>2435.31</b>	<b>2435.31</b>

### O&M Expenses

64. The generating station is in operation for three or more years as on 1.4.2014. Accordingly, in terms of sub-section (a) of clause (3) of Regulation 29 of the 2014 Tariff Regulations, the year-wise O&M expense norms considered for the generating station of the petitioner for the period 2014-19 is as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
7256.54	7738.66	8252.82	8801.14	9385.89





### Interest on working capital

65. Sub-section (c) of Clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

*“28. Interest on Working Capital:*

*(1) The working capital shall cover*

*(c) Hydro generating station including pumped storage hydro electric generating Station and transmission system including communication system:*

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

*(ii) Maintenance spares @ 15% of operation and maintenance expense specified in regulation 29; and*

*(iii) Operation and maintenance expenses for one month.”*

66. Accordingly, receivables considering two months of fixed cost are worked out and allowed as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
5605.94	5616.52	4249.86	4309.84	4367.44

67. Maintenance spares @ 15% of operation and maintenance expenses are worked out and allowed as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1088.48	1160.80	1237.92	1320.17	1407.88

68. O&M Expenses for one month are allowed as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
604.71	644.89	687.74	733.43	782.16

### Rate of interest on working capital

69. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

*“Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.”*

70. In terms of the above regulations, the Bank Rate of 13.50% (Base Rate + 350 Basis Points) as on 1.4.2014 has been considered by the petitioner. This has been considered in the calculations for the purpose of tariff.



### Interest on Working Capital

71. Necessary computations in support of interest on working capital are appended below:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	1088.48	1160.80	1237.92	1320.17	1407.88
O & M expenses	604.71	644.89	687.74	733.43	782.16
Receivables	5605.94	5616.52	4249.86	4309.84	4367.44
Total	7299.13	7422.21	6175.52	6363.44	6557.48
<b>Interest on working capital @ 13.50%</b>	<b>985.38</b>	<b>1002.00</b>	<b>833.70</b>	<b>859.06</b>	<b>885.26</b>

### Annual Fixed Charges

72. Accordingly, the annual fixed charges approved for the generating station for the period 2014-2019 are as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	12810.21	12819.84	12844.64	12862.36	12862.36
Interest on Loan	2261.75	1808.91	1144.30	901.16	635.81
Depreciation	10321.76	10329.70	2423.73	2435.31	2435.31
Interest on Working Capital	985.38	1002.00	833.70	859.06	885.26
O & M Expenses	7256.54	7738.66	8252.82	8801.14	9385.89
<b>Total</b>	<b>33635.64</b>	<b>33699.12</b>	<b>25499.19</b>	<b>25859.03</b>	<b>26204.62</b>

### Normative Annual Plant Availability Factor

73. Clause (4) of Regulation 37 of the 2014 Tariff Regulations provides for the Normative Annual Plant Availability Factor (NAPAF) for hydro generating stations already in operation. Accordingly, the NAPAF of 90% for this generating station (being ROR with pondage) has been considered.

### Design Energy

74. The Commission in its order dated 27.1.2012 in Petition No.66/2010 had approved the annual Design Energy (DE) of 1499.89 Million units for the period 2009-14 in respect of this generating station. This DE has been considered for this generating station for the period 2014-19 as per month-wise details as under:

Month	Design Energy (MUs)
April	188.65
May	212.04
June	149.31
July	212.04
August	212.04
September	152.23
October	69.95



November	48.98
December	39.55
January	39.29
February	56.43
March	119.38
<b>Total</b>	<b>1499.89</b>

### **Application Fee and Publication Expenses**

75. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited tariff filing fees of ₹1320000/- for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The petitioner vide affidavit dated 14.11.2014 has submitted that it has incurred ₹397671/- as charges towards publication of the said tariff petition in the newspapers. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 6.1.2016 in Petition No.232/GT/2014, the petitioner shall be entitled to recover the filing fees for the year 2014-15 and the expenses incurred on publication of notices for the period 2014-19 directly from the respondents. The filing fees for the remaining years of the tariff period 2015-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

76. The annual fixed charges approved for the period 2014-19 as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

77. Petition No. 233/GT/2014 is disposed of in terms of the above.

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

**Sd/-**  
**(A.S Bakshi)**  
**Member**

**Sd/-**  
**(A.K.Singhal)**  
**Member**

**Sd/-**  
**(Gireesh B. Pradhan)**  
**Chairperson**



**Calculation of Weighted Average Rate of Interest on Loan***(₹ in lakh)*

	2014-15	2015-16	2016-17	2017-18	2018-19
<b>EDC-LOAN IN INR</b>					
Gross loan - Opening	61238.84	61238.84	0.00	0.00	0.00
Cumulative repayments of Loans up to previous year	61915.56	67078.06	0.00	0.00	0.00
Net loan - Opening	10324.94	5162.44	0.00	0.00	0.00
Add: Drawal(s) during the Year	0.00	0.00	0.00	0.00	0.00
ADD: ERV	0.00	0.00	0.00	0.00	0.00
Less: Repayment (s) of Loans during the year	5162.50	5162.44	0.00	0.00	0.00
Net loan - Closing	5162.44	0.00	0.00	0.00	0.00
Weighted Average Loan	7743.69	2581.22	0.00	0.00	0.00
Rate of Interest on Loan	8.433%	10.896%	0.00	0.00	0.00
Interest on loan	529.14	219.3	0.00	0.00	0.00
Financing Charges GF	123.90	61.95	0.00	0.00	0.00
<b>Weighted average Rate of Interest on Loans</b>	<b>8.433%</b>	<b>10.896%</b>			

