CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 235/GT/2014

Coram:
Shri Gireesh B. Pradhan, Chairperson
Shri A.K. Singhal, Member
Shri A.S. Bakshi, Member

Date of Hearing: 28.11.2014
Date of Order: 17.06.2015

In the matter of

Revision of Annual Fixed Charges for the period 2009-14 after truing-up exercise and Determination of annual fixed charges for the period 2014-19 in respect of Baira Siul Hydroelectric Power Station

And

In the matter of

NHPC Limited
NHPC Office Complex,
Sector-33, Faridabad,
Haryana-121003 **…Petitioner**

Vs

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

2. Haryana Power Purchase Centre
Shakti Bhawan, Sector-6,
Panchkula, Haryana-134109 (Haryana)

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

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

5. Tata Power Delhi Distribution Ltd.
(erstwhile North Delhi Power Ltd)
33 kV sub-Station Building,

Hudson Lane, Kingsway Camp,
New Delhi-110009

6. Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House,
Shimla-171004 (Himachal Pradesh) **...Respondents**

Parties present:

For Petitioner	Shri Piyush Kumar, NHPC Shri A. K. Pandey, NHPC Shri S.K. Meena, NHPC
For Respondents:	Shri R.B. Sharma, Advocate, BRPL

ORDER

This petition has been filed by the petitioner, NHPC for revision of tariff of Baira Siul Hydroelectric Power Station (3 x 60 MW) (hereinafter referred to as 'the generating station') for the period 2009-14 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 the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").

2. During the hearing of the petition on 13.10.2014, the respondent, BRPL raised preliminary objection as regards the clubbing of tariff petitions by the petitioner and submitted that the petitioner may be directed to file separate petitions, for truing-up of tariff for the period 2009-14 and for determination of tariff for 2014-19. The Commission after hearing the parties by interim order dated 12.11.2014 rejected the contentions of the respondent and held that the petition filed by the petitioner was maintainable. The relevant portion of the order is extracted as under:

> *"17. In our view, clubbing of tariff petitions for truing-up for 2009-14 along with the tariff petitions for 2014-19 and disposing of the same through a single order would not only save time, but also bring about certainty in the recovery of cost by these generating stations of the petitioner and also safeguard the interest of consumers. In this background, the preliminary objections raised by the learned counsel for the respondent, BRPL as to the maintainability of these petitions stands rejected. Hence, we hold that the petitions filed by the petitioner in respect of the said generating stations are maintainable."*

3. Accordingly, the petition was heard on 28.11.2014 and the Commission, after directing the parties to complete the pleadings reserved orders in the petition. The respondent, BRPL has filed reply to the petition and the petitioner has filed its rejoinder to the same. Based on the submissions of the parties and the documents available on record, we proceed to revise the tariff for the period 2009-14 based on truing-up exercise and also determine the tariff for the period 2014-19 in respect of the generating station as stated in the subsequent paragraphs:

<u>Revision of annual fixed charges for 2009-14</u>

4. Petition No.90/2010 was filed by the petitioner for determination of tariff of the generating station for the period 2009-14 and the Commission by its order dated 15.6.2011 had determined the annual fixed charges for the generating station. Subsequently, the annual fixed charges determined by order dated 15.6.2011 was revised by Commission's order dated 31.8.2012 in Review Petition No.19/2011. Thereafter, the petitioner filed Petition No.140/GT/2013 for revision of tariff for the period 2009-14 in accordance with the proviso to Regulation 6(1) of the 2009 Tariff Regulations and the Commission by order dated 31.12.2013 considered the opening capital cost of ₹18199.26 lakh as on 1.4.2009 and revised the annual fixed charges of the generating station as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	1860.47	1840.27	1821.95	1414.87	1494.82
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	741.53	744.59	750.87	767.59	819.50
Interest on Working Capital	356.66	373.60	391.64	402.84	426.03
O & M Expenses	6045.99	6391.82	6757.43	7143.96	7552.59
Total	**9004.65**	**9350.28**	**9721.89**	**9729.25**	**10292.94**

5. 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."

6. The petitioner in this petition has claimed revision of tariff for the period 2009-14 based on the actual additional capital expenditure incurred during the years 2012-13 and 2013-14. The annual fixed charges claimed by the petitioner for the period 2009-14 in this petition are as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	1860.47	1840.27	1821.95	1577.86	1696.08
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	741.53	744.59	750.87	796.53	880.12
Interest on Working Capital	356.66	373.60	391.64	406.84	431.48
O & M Expenses	6045.99	6391.82	6757.43	7143.96	7552.59
Total	**9004.65**	**9350.28**	**9721.89**	**9925.19**	**10560.27**

Capital cost

7. 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;"

8. The Commission had considered the closing capital cost of ₹18199.26 lakh as on 31.3.2009 as the opening capital cost as on 1.4.2009 in order dated 15.6.2011 in Petition No. 104/2010 for approval of tariff for 2009-14. Accordingly, this capital cost of ₹18199.26 lakh was considered as the opening capital cost as on 1.4.2009 for revision of tariff in order dated 3.12.2013 in Petition No.140/GT/2013. However, the closing capital cost considered as on 31.3.2012 in order dated 31.12.2013 is ₹18288.29 lakh. Accordingly, this closing capital cost of ₹18288.29 lakh has been considered as the opening capital cost as on 1.4.2012, for the purpose of revision of tariff.

Actual/ Projected Additional Capital Expenditure (2012-13 and 2013-14)

9. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011 provides as under:

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

(i) Un-discharged liabilities;

(ii) Works deferred for execution;

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

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

(v) Change in law: Provided that the details of works included in the original scope of work along with estimates of expenditure, un-discharged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

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

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

(ii) Change in law;

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

(iv) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation; and

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

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

(vi) In case of gas/liquid fuel based open/ combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbines after 15 year of operation from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficient operation of the stations. Provided that any expenditure included in the R&M on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R&M expenditure to be allowed.

(vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receipt system arising due to non-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 kilometers of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility."

10. The projected additional capital expenditure allowed for the period 2012-14 in order dated 31.12.2013 in Petition No.140/GT/2013 and the actual additional capital expenditure claimed in this petition are as under:

(₹ in lakh)

	2012-13	2013-14
Projected additional capital expenditure allowed in order dated 31.12.2013	108.00	411.00
Actual additional capital expenditure claimed in this petition	433.71	303.00

11. The re-conciliation of actual additional capital expenditure claimed in this petition 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:

(₹ in lakh

Sl. No.		2012-13	2013-14
1	**Additional Capitalization (claimed for tariff)**		
(a)	**Additions**		
(i)	Capitalisation against works projected and allowed for additional capitalisation during 2012-13 to 2013-14	317.52	325.44
(ii)	Additional Capital Expenditure not projected but claimed.	108.37	107.07
(iii)	**Total 1(a)**	**425.89**	**432.50**
(b)	**Deletion / Deduction**		
(i)	Assets Deducted on Replacement of New Assets.	0.00	(-) 102.88
(ii)	Deduction of Assets without any Replacement and not Covered under Exclusion Clause	0.00	(-) 6.07
(iii)	**Total (b)**	**0.00**	**(-) 108.95**
2.	**Net Addition claimed {1(a)(iii)+1(b)(iii)}**	**425.89**	**323.55**
3.	**Additional Capitalization (Excluded/ignored for tariff purpose)**		
(a)	**Addition**		
(i)	Other than Inter-unit addition	451.64	285.25
(ii)	Addition on account of Inter-unit transfer	0.49	1.08
(iii)	**Total 3(a)**	**452.13**	**286.33**
(b)	**Deletion**		
(i)	Deletion	(-) 71.15	(-) 63.43
(ii)	Deletion on account of Inter-unit transfer	0.00	(-) 1.40
(iii)	Deletion on account of replacement	0.00	(-) 3.40
(iv)	**Total (b)**	**(-) 71.15**	**(-) 68.22**
4.	**Net Addition under Exclusion Category {3(a)(iii)+3(b)(iv)}**	**380.98**	**218.11**
5.	**Net Additional Capitalisation (including IUT) as per Books of Accounts (2+4)**	**806.88**	**541.66**
6	Net additional capitalisation claimed		
	Net additional capitalisation as per Sl.no 2 above	425.89	323.55

	Less : Un-discharged liability included in above Additional Capital Expenditure	0.00	3.62
	Add : Liability discharged out of liabilities which existed as on 31.3.2012 (affidavit dated 16.12.2014)	11.22	3.40
	Add: Assumed Deletions	(-) 3.40	(-) 20.33
	Net additional capital expenditure claimed	**433.71**	**303.00**

12. Based on the above reconciliation, the year-wise admissibility of the additional capital expenditure under various heads is discussed in the subsequent paragraphs.

<u>2012-13</u>

13. No additional capital expenditure against the works approved by Commission has been undertaken by the petitioner during the year 2012-13.

Works allowed in previous years but capitalized in 2012-13

14. The details of works/assets, the additional capital expenditure allowed for these works / actual additional capital expenditure against these works 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	Amount allowed on projected basis	Actual expenditure incurred/ claimed	Justification for admissibility of expenditure
1	Replacement of Type-III and IV quarters at Surangani.	291.00	314.59	**Allowed** under Regulation 9(2) (iv) for works approved vide order dated 15.6.2011. The gross value of the old asset has been reduced under "Assumed Deletions"
2	Automatic Spike Barrier.	2.00	2.94	**Allowed** under Regulation 9(2) (iv) as the work has been approved vide order dated 15.6.2011.
	Total amount claimed		**317.52**	
	Total amount allowed		**317.52**	

2013-14

15. No additional capital expenditure against the works approved by Commission has been undertaken by the petitioner during the year 2013-14.

Works allowed in previous years but capitalized in 2013-14

16. The details of works, the additional capital expenditure allowed for these works, the actual additional capital expenditure incurred against these works along with justification for admissibility of the actual additional capital expenditure in terms of 2009 Tariff Regulations is as under:

(₹in lakh)

Sl. No	Assets/works	Amount allowed on projected basis	Actual expenditure incurred/ claimed	Remarks for admissibility
1	Replacement of Existing Distribution Transformer, 11/440 kV, 200 kVA	3.00	2.96	**Allowed** under Regulation 9(2) (iv) for works approved vide order dated 15.6.2011. The gross value of the old asset has been reduced under "Assumed Deletions"
2	Replacement of Existing Distribution Transformer, 11/440 KV, 1000 kVA	18.00	15.22	**Allowed** under Regulation 9(2) (iv) for works approved vide order dated 15.6.2011. The gross value of the old asset has been reduced under "Assumed Deletions"
3	Replacement of Existing Distribution Transformer, 11/440 KV 500 kVA	6.00	4.82	
4	Replacement of Type-V quarters at Surangani.	51.00	70.89	**Allowed** under Regulation 9(2) (iv) for works approved vide order dated 15.6.2011. The gross value of the old asset for ₹2.81 lakh has been reduced under "Assumed Deletions"
5	Replacement of existing Terex dumper with heavy duty Tata tipper.	20.00	17.69	**Allowed** under Regulation 9(2) (iv) as the work has been approved vide order dated 15.6.2011. The gross value of old asset i.e ₹6.26 lakh has been considered and reduced under "Assumed Deletions"
6	Sewerage Treatment plant for	80.00	179.72	**Allowed** under Regulation 9(2) (iv) as the work has been

	Surangani colony			approved vide order dated 15.6.2011.
7	Oil Filtration Plant	25.00	30.11	**Allowed** under Regulation 9(2) (iv) for works approved vide order dated 15.6.2011. The gross value of the old asset has been reduced under "Assumed Deletions".
8	33 kV Vacuum Circuit Breaker	5.00	4.02	
	Total amount claimed		**325.44**	
	Total amount allowed		**325.44**	

17. The petitioner has clarified that the additional capital expenditure allowed was on projection basis and whereas the actual expenditure incurred is less/in excess due to competitive rates quoted by the bidders and/or due to inflationary trend in material and labour cost.

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

18. The details of the actual additional capital expenditure incurred against new works/ assets along with admissibility of the actual additional capital expenditure in terms of 2009 Tariff Regulations is as under:

<u>2012-13</u>

(₹in lakh)

Sl. No.	Assets/works	Actual expenditure incurred/ claimed	Justification of the petitioner	Remarks for admissibility
1.	Server room in admin block	4.79	The existing room where the servers were being kept was small in size having inadequate ventilation and cooling which was adversely affecting the performance. A new room dedicated for servers has been constructed with due care to proper ventilation and cooling. This has resulted in better	Since the expenditure has been incurred and considering the fact that the said asset is considered necessary for efficient operation of the generating station, the same has been **allowed** on prudence check under Regulation 9(2) (iv) of the 2009 Tariff

			networking. As regards the submission of the respondent BRPL that the amount was not approved by the Commission, it is observed that this asset was not claimed by the petitioner on projected basis in Petition No.90/2010.	Regulations.
2.	Barbed wire fencing along CISF ground, Jaddu	5.21	Keeping in view the present security scenario and threat and also for safety and security of CISF personnel the work has been carried out.	**Allowed** under Regulation 9(2)(iv) for safe and successful operation of the generating station.
3.	DG set 20KVA with acoustic enclosure.	3.46	During rainy season and due to heavy snow fall Bhaled Weir become isolated with electric power. To operate the intake gates in such situations and to regulate inflow of water, emergency backup is provided with this DG Set.	**Allowed** under Regulation 9(2)(iv) since the said asset is considered necessary for efficient operation of the generating station,
4.	Universal Relay Kit	22.41	The old and obsolete mechanical relays installed in BSPS are being replaced in phased manner by numerical relays. In order to ensure healthy operation of these numerical relays in house periodic checking is essential. Hence a relay test kit has been purchased.	**Not allowed** as the capitalisation of this asset has not been allowed vide Commission's order dated 15.6.2011 & 31.8.2012.

5.	Submersible Agitator Pump	56.12	Bairasiul Power Station is under O&M since 1982 (COD). The power station is carrying out de-silting operation every year for maintaining the live storage capacity of the reservoir. But with the passage of time, considerable silt has accumulated in the reservoir and has decreased the live storage capacity of the reservoir. Accumulated silt in front of the Diversion Tunnel (DT) gate also chokes the DT gate which in turn creates problem while operating the DT gate during destiling operation. As a result regular operation of DT gate is difficult because of deposition of silt in the reservoir. Regular operation of DT gate is essential for proper de-silting of Baira Dam. Hence Toyo Pump has been purchased for facilitating controlled flushing / destiling of reservoir & thereby ensuring removal of silt around the gate and smooth operation of DT gate.	**Allowed** under Regulation 9(2)(iv) as the expenditure is in respect of assets which are considered necessary for successful and efficient operation of the generating station.
6	Control Panel For Toyo Submersible Agitator Sand Pump	14.53		
7	Hospital Equipments	1.85	These items have been purchased to meet the day to day requirements of hospital being used for the employees of the Project.	**Allowed** under the Regulation 9(2)(iv) as the asset is required for the benefit of the employees working in remote areas which will contribute to the efficient operation

				of the generating station.
	Total amount claimed	**108.36**		
	Total amount allowed	**85.96**		

2013-14

(₹in lakh)

Sl. No.	Assets/works	Actual expenditure incurred/ claimed	Justification submitted by the petitioner	Remarks for admissibility
1.	Microprocessor based annunciator for 559 points PH including software	12.66	The existing annunciation system which is distributed and restricted to different floors upgraded by including new facia and extending the same to control room for better and efficient operation of power plant. Independent value of asset is not available being a part of GPM.	**Not allowed** as the asset is of a minor nature
2.	Portable Dissolved Gas Analyser complete with standard accessories.	34.64	Periodic checkup of the condition of oil in transformer is essential requirement for ensuring the smooth functioning of the same. Previously these tests were carried out by sending oil samples to different stations and outside agencies resulting in wastage of time. Also there were chances in erroneous test result due to impurification of the samples. To eradicate these problems Dissolved gas analyser has been purchased for efficient operation of plant.	
3.	Fully automated capacitance and Tan-Delta measuring Kit, Megger/Delta4310	33.95	In order to ensure trouble free operation of machines, periodic checkup of insulation of the generator and GT are essential which can now be done in house through Capacitance and TAN measurement kit.	**Not allowed** as the asset is in the nature of Tools & Tackles.
4.	TATA Winger (Ambulance)	7.33	The existing ambulance stationed in BSPS is very old and has overrun its life and number of KM's. Also being old vehicle the same was not compliant to run on the road. Hence, it has been replaced by a new one.	**Allowed** under the Regulation 9(2)(iv) as the asset is required for the benefit of the employees working in remote areas which will contribute to the

				efficient operation of the generating station.
5.	Portable moisture in oil Detector.	4.99	Periodic checkup of the health of transformer oil is essential for trouble free operation. The moisture content/ingress in the oil can be detected in house with this instrument.	**Not allowed** as the asset is of a minor nature
6.	Water Discharge measurement system with mandatory spares.	10.50	Baira siul river being seasonal in nature is prone to flash floods & sudden increase in discharge. The discharge measuring instrument has been installed at G&D site at Baroh to detect the discharge. These data are also being passed on to downstream power stations so that they can take precautionary measures. Prior to installation of the system, discharge was being measured arithmetically based on precious data and indicators marked on permanent structures which were not very much accurate.	
7.	Automatic water level monitoring system with mandatory spares.	3.00	Baira siul river being seasonal in nature is prone to flash floods & sudden increase in discharge resulting in sudden and step rise in level of reservoir. To measure the level of the reservoir so that necessary action can be taken and also to regulate generation of power/ revise schedules as per availability of water, accurate measurement of level in the reservoir is required.	
	Total amount claimed	**107.07**		
	Total amount allowed	**7.33**		

19. The total additional capital expenditure allowed as above for 2012-13 and 2013-14 is summarized as under:

	2012-13	2013-14
Expenditure already approved by Commission	317.52	325.44
Expenditure projected earlier but incurred and claimed	85.96	7.33
Total additional capital expenditure	**403.48**	**332.77**

Deletions

20. The following year-wise expenditure has been de-capitalized by the petitioner on account of replacement of assets. The de-capitalized assets include quarters, Tipper, Excavator, Toyo submersible agitator and panels (transferred to Dhauliganga) and vehicles.

(₹in lakh)

	2012-13	2013-14
Deletions	0.00	(-) 108.95

21. 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 affected in the books of accounts has been allowed for the purpose of tariff. Accordingly, the above said amounts have been deleted for the purpose of tariff.

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

22. 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 etc.,

(₹in lakh)

	2012-13	2013-14
Exclusions in additions (incurred, capitalized in books but not to be claimed for tariff purpose)	452.13	286.33

23. The expenditure incurred towards procurement/replacement of minor assets and procurement of capital spares after the cut-off date is not permissible for the purpose of tariff 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)

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

(₹in lakh)

	2012-13	**2013-14**
Minor assets de-capitalized	(-) 2.85	(-)15.14
Capital spares de-capitalized on consumption	(-) 68.29	(-) 53.08
Total Exclusions in deletions (de-capitalized in books but not to be considered for tariff purpose)	**(-) 71.15**	**(-) 68.22**

25. 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."*

26. Accordingly, in line with the above decision of the Commission, the negative entries corresponding to the deletion of minor assets are allowed to be excluded/ ignored for the purpose of tariff.

27. The petitioner has excluded amounts of (-)₹68.29 lakh and (-)₹53.08 lakh for the years 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 pointed out that the expenditure on minor assets and 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.

28. Accordingly, on verification of the details in the truing-up petition filed for the period 2009-12 and the instant 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 to in the capital cost for the purpose of tariff. In other words, positive entries arising out of their purchase had also been excluded / ignored for the purpose of tariff. Based on the above discussions, the following amounts have been allowed to be excluded/ ignored for the purpose of tariff as under:

(₹in lakh)

	2012-13	2013-14
Exclusions in additions	452.13	286.33
Exclusions in deletions	(-) 71.15	(-) 68.22
Total exclusions allowed	**380.98**	**218.11**

Assumed Deletions

29. As per consistent methodology adopted by the Commission, 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 value of the old asset. However, in certain cases where de-capitalization is proposed to be effected /affected during the future 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:

(₹ in lakh)

	2012-13	**2013-14**
Assumed deletions	(-) 3.40	(-) 20.33

30. It is observed that the petitioner has claimed assumed deletion of ₹3.40 lakh on account of replacement of Type-III & Type-IV quarters at Surangani during the year 2012-13 against the capitalization of ₹314.59 lakh towards the expenditure on new quarters. In books of accounts, the gross value of old Type-III & Type-IV quarters has been de-capitalized during 2013-14. As such, by way of assumed deletion, the negative book entry of ₹3.40 lakh for the year 2013-14 has been shifted to 2012-13 i.e during the year of capitalization of the new asset. This is in order and has been allowed.

31. Further, the petitioner has indicated assumed deletion of ₹20.33 lakh on account of replacement of Transformers, Oil filtration plant and 33 kV Vacuum Circuit Breaker, microprocessor based annunciator and ambulance during the year 2013-14 against the capitalization of ₹77.12 lakh. The actual de-capitalization of these old assets may be

effected in books during 2014-15. However, by way of assumed deletions during the year 2013-14, the future book entries have been shifted to the year of capitalization of new assets. This is in order and has been allowed. Considering the fact that the capitalization of expenditure on microprocessor based annunciator has not been allowed, the de-capitalization of gross value of old asset amounting to ₹1.69 lakh has also been ignored for the purpose of tariff. As such, assumed deletions considered and allowed for the year 2013-14 works out to ₹18.64 lakh.

Un-discharged liabilities and discharge of liabilities

32. The petitioner has indicated the following un-discharged liabilities in the actual additional capital expenditure for 2012-14 along with the details of liabilities discharged (vide affidavit dated 16.12.2014):

(₹ in lakh)

	2012-13	**2013-14**
Un-discharged liabilities in actual additional capital expenditure	0.00	3.62
Liabilities discharged during the year out of the existing un-discharged liabilities as on 31.3.2012	11.22	3.40

33. The un-discharged liabilities and the discharge of liabilities as furnished by the petitioner has been considered for working out the admissible capital expenditure for the period 2012-14. However, an amount of ₹3.62 lakh of un-discharged liability for the asset microprocessor based annunciator capitalized in 2013-14 has not been considered, as the capitalization of the asset has not been allowed.

34. Based on above discussions, 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**
Additions against works already approved by Commission	317.52	325.44
Additions not projected earlier but incurred and claimed	85.96	7.33
Total additions allowed **(a)**	**403.48**	**332.77**

Deletions allowed **(b)**	0	(-) 108.95
Assumed deletions considered **(c)**	(-)3.40	(-) 18.64
Total additional capital expenditure allowed before un-discharged/ discharged liabilities **(d)=(a)+(b)+(c)**	**400.08**	**205.18**
Less: Un-discharged liabilities in the additional capital expenditure allowed above	0	0.0
Less: Un-discharged liabilities in the above admitted additional capital expenditure	0	0.0
Add: Liabilities discharged during the year un-discharged liability existing as on 31.3.2014	11.22	3.40
Additional Capital Expenditure allowed	**411.30**	**208.58**

Capital cost for 2009-14

35. Accordingly, the capital cost considered for the purpose of the tariff is as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital Cost	18199.26	18207.74	18235.86	18288.29	18699.59
Additional Capital Expenditure allowed for tariff	8.48	28.12	52.43	411.30	208.58
Capital Cost as on 31st March of the financial year	**18207.74**	**18235.86**	**18288.29**	**18699.59**	**18908.17**

Return on Equity

36. The petitioner has considered the rate of Return on Equity after grossing up with effective tax rate as under:

Year	2009-10	2010-11	2011-12	2012-13	2013-14
Base Rate	15.500%	15.500%	15.500%	15.500%	15.500%
Applicable Tax Rate	33.990%	33.218%	32.445%	20.008%	20.961%
Rate of ROE (pre-tax)	23.481%	23.210%	22.944%	19.377%	19.611%

37. The Base Rate has been changed from 15.5% to 16.5% for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage vide the 2009 Tariff Regulations, 2012, amended on 31.12.2012. Therefore, the base rate of 15.75% has been considered for 2012-13. Considering the above rates after accounting for the admitted additional capital expenditure, the Return on Equity has been worked out as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Gross Notional Equity	7922.03	7924.58	7933.01	7948.74	8072.13
Addition due to additional capital expenditure	2.54	8.44	15.73	123.39	62.57
Closing Equity	7924.58	7933.01	7948.74	8072.13	8134.71
Average Equity	7923.30	7928.79	7940.88	8010.44	8103.42
Return on Equity	**1860.47**	**1840.27**	**1821.95**	**1577.17**	**1691.67**

Interest on Loan

38. The normative loan in respect of the project has already been repaid. The normative loan on account of the admitted additional capital expenditure during the respective years of the tariff period 2009-14 have been considered as fully paid, as the admitted depreciation is more than the amount of normative loan in these years. As such, the Interest on loan during the period 2009-14 is worked out as 'Nil'.

Depreciation

39. The date of commercial operation of the generating station is 1.4.1982. Since the station has completed 12 years of operation as on 1.4.1994, the remaining depreciable value has been spread over the balance useful life of the assets. Assets amounting to ₹8.12 lakh, ₹2.21 lakh, ₹13.38 lakh, ₹3.40 lakh and ₹127.59 lakh have been de-capitalized during the years 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14 respectively. As per the consistent methodology adopted by the Commission, the amount of cumulative depreciation allowed in tariff against those de-capitalized assets has been calculated on pro-rata basis. The same has been adjusted from the cumulative depreciation of the year of de-capitalization. Accordingly, the depreciation has been computed as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Gross Block as on 31.3.2009	18199.26	18207.74	18235.86	18288.29	18699.59
Additional capital expenditure	8.48	28.12	52.43	411.30	208.58

during 2009-14					
Closing gross block	18207.74	18235.86	18288.29	18699.59	18908.17
Average gross block	18203.50	18221.80	18262.08	18493.94	18803.88
Depreciable Value	16249.75	16266.22	16302.47	16511.15	16790.10
Balance Useful life of the asset	8.0	7.0	6.0	5.0	4.0
Remaining Depreciable Value	5932.25	5212.12	4505.21	3972.19	3459.12
Depreciation	**741.53**	**744.59**	**750.87**	**794.44**	**864.78**

Operation & Maintenance Expenses

40. O&M expenses as allowed in order dated 31.12.2013 in Petition No. 140/GT/2013 has been considered as under:

(₹ in lakh)

2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
6045.99	6391.82	6757.43	7143.96	7552.59

Interest on working capital

41**. Receivables:** In terms of Regulation 18(1) (c) (i) of 2009 Tariff Regulations, receivables equivalent to two months of fixed cost has been considered as under:

(₹n Lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Two months of annual fixed cost	1500.78	1558.38	1620.32	1653.73	1756.69

42**. Maintenance Spares:** Regulation 18(1) (c) (ii) of 2009 Tariff Regulations, provides Maintenance spares @ 15% of operation and maintenance expenses as specified in Regulation 19, the same has been considered as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Cost of maintenance spares	906.90	958.77	1013.61	1071.59	1132.89

43**. O&M Expenses:** Regulation 18(1) (c) (ii) of 2009 Tariff Regulations provides, operation and maintenance expenses for one month is permissible and has been considered in tariff.

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
O & M for 1 month	503.83	532.65	563.12	595.33	629.38

Rate of interest on working capital

44. Regulation 18(3) of 2009 Tariff Regulations provides that the 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 or the transmission system, as the case may be, is declared under commercial operation, whichever is later.

45. In accordance with Regulation 18(3) of the 2009 Tariff Regulations, 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 or the transmission system, as the case may be, is declared under commercial operation, whichever is later.

46. The SBI PLR as on 1.4.2009 was 12.25% has been considered for computation of the interest on working capital.

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

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	906.90	958.77	1013.61	1071.59	1132.89
O & M expenses	503.83	532.65	563.12	595.33	629.38
Receivables	1500.78	1558.38	1620.32	1653.73	1756.69
Total	2911.51	3049.81	3197.05	3320.65	3518.96
Interest on Working Capital @ 12.25%	**356.66**	**373.60**	**391.64**	**406.78**	**431.07**

Annual Fixed charges for 2009-14

48. The annual fixed charges for the period 2009-14 allowed for generating station are summarized as under:

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	1860.47	1840.27	1821.95	1577.17	1691.67
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	741.53	744.59	750.87	794.44	864.78
Interest on Working Capital	356.66	373.60	391.64	406.78	431.07
O & M Expenses	6045.99	6391.82	6757.43	7143.96	7552.59
Annual Fixed Charges	**9004.65**	**9350.28**	**9721.89**	**9922.35**	**10540.11**

49. The difference between the annual fixed charges already 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

50. 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
Depreciation	979.16	1043.73	1086.31	152.59	156.51
Interest on Loan	3.44	3.44	0.00	0.00	0.00
Return on Equity	1753.33	1809.32	1845.45	1877.80	1882.42
Interest on Working Capital	543.38	578.08	613.85	629.40	668.31
O & M Expenses	8696.25	9274.03	9890.18	10547.30	11248.06
Annual Fixed Charges	**11975.56**	**12708.60**	**13435.79**	**13207.09**	**13955.30**

51. 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 respondent BRPL has filed reply to the petition and the petitioner has filed its rejoinder to the said reply of the respondent. 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

52. 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*

53. The closing capital cost considered by the Commission as on 31.3.2014 in this order is ₹18908.17 lakh. This 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

54. The petitioner in the truing-up petition has submitted that it has not been able to incur some projected additional capital expenditure allowed by the Commission against the works/ assets allowed in order dated 27.6.2011 in Petition No.104/2010. Accordingly, the petitioner has prayed that Commission may allow the capitalization of these approved works/ assets during the period 2014-19. This prayer of the petitioner is accepted. However, the capitalization of the expenditure on this count is subject to the admissibility of the expenditure in terms of 2014 Tariff Regulations.

55. 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.

56. 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 safety 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."

57. The year-wise breakup of the projected additional capital expenditure claimed by the petitioner is as under:

(₹ *in lakh*)

2014-15	2015-16	2016-17	2017-18	2018-19
1107.18	933.00	61.00	228.00	8.00

58. Before proceeding, we examine some of the issues raised by the respondent, BRPL as regards the claim for additional capitalization of assets/items by the petitioner during 2014-19. The petitioner in this petition has claimed additional capital expenditure for assets/items for the period 2014-19 under Regulation 14(3) (viii) of the 2014 Tariff Regulations. The respondent BRPL has submitted that since the generating station will be completing its useful life on 31.3.2017, the petitioner may be directed to claim additional capitalization under Regulation 15 of 2014 Tariff Regulations. He also submitted that except for the spillover of additional capitalization for the period 2009-14, the balance additional capitalization may form part of the R & M expenses in the

application to be filed under Regulation 15 of 2014 Tariff Regulations. In response, the petitioner has clarified that the additional capital expenditure which has been proposed do not form part of R & M work. The petitioner has also submitted that this expenditure is very essential for operation of the generating station and will be useful in the extended life of the generating station. The petitioner has further submitted that Detailed Project Report (DPR) for complete R&M of the generating station has been prepared and same would be filed in terms of Regulation 15 of the 2014 Tariff Regulations for approval of the Commission.

59. We have examined the matter. The generating station which is in operation since 1.4.1982 will be completing useful life of 35 years on 31.3.2017. Considering the fact that a separate application for approval of additional capitalization for R&M works is being filed by the petitioner in terms of Regulation 15 of the 2014 Tariff Regulations, only those expenditure which do not form part of the R&M work and which are essential for operation of the generating station during the fag end of useful life are proposed to be allowed on prudence check in this order. 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)

Sl. No.	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	LT Control Panels	6.02	These items have already been allowed by Commission in 2009-14 under Regulation 9(2)(iv) of 2009 Tariff Regulations. Supply order was already	**Allowed** under Regulation 14(3)(viii) as the expenditure on this asset has already been approved.	6.02

2	Loader Cum Excavator	26.29	placed however payments have been disbursed in 2014-15.	**Allowed** under Regulation 14(3) (viii) as the expenditure on this asset has already been approved. The reduction of the gross value of the old asset for ₹13.98 lakh considered during 2013-14	26.29
3	Replacement of 11 kV Oil Ckt Breakers with Vacuum Ckt Breaker	32.21		**Allowed** under Regulation 14(3) (viii) after reduction of the gross value of the old asset is ₹3.02 lakh, as the expenditure on this asset has already been approved.	**29.19** (32.21-3.02)
4	Construction of Type-II quarters at Surangani.	778.66		**Allowed** under Regulation 14(3) (viii) after reduction of the gross value of the old asset, as the expenditure on this asset has already been approved. The reduction of the gross value of the old asset for ₹9.18 lakh considered during 2013-14	778.66
5	Gravity water supply line from Rakhalu to Surangani including tank	50.00	**New Work.** This available water source can be utilized to fulfill some of the requirement of water supply for Surangani colony and that too through gravity i.e. without any pumping. There is a natural water source available at the place named Rakhalu near Surangani from which water is to be provided to New quarters at Jaddu. This place is at higher elevation than Surangani. Cost is based on engineering estimate.	**Allowed** under Regulation 14(3) (viii) since the asset would benefit the employees working and accordingly contribute to the efficient operation of the generating station.	50.00

6	Digital Water & oil level indicators for Drainage/Dewatering sump and oil sumps of TB & OPUs with remote display	12.00	**New Work.** Water level sensors in the drainage & dewatering sump and oil level sensors in the Thrust Bearing/ OPU's sumps are critical piece of equipment for the auto operation (starting/ stopping) of the pumps and for remote display in the control room. Cost estimate is based on recent purchase made for same type of item.	**Not Allowed** as the asset is of a minor nature	0.00
7	DG SET (100/125 kVA) for Dam site	10.00	**On replacement basis**. The existing DG Set is very old and outlived its useful life due to continuous use and wear & tear. It is, therefore, required to be replaced by new one. Cost estimate is based on actual purchase made for 125 KVA DG set in the year 2013-14.	**Allowed** under Regulation 14(3) (viii) as the asset/ work is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹0.52 lakh	**9.48** (10.00-0.52)
8	Purchase of portable diesel operated Air compressor suitable for operation of 3 to 4 jack hammer	13.00	**On replacement basis.** The portable air compressors are required for miscellaneous works at powers station like cleaning of roads, provide air supply to divers etc. Cost estimate is based on budgetary offer received from M/s Berico Sales & Services Pvt. Ltd.	**Allowed** under Regulation 14(3) (viii) as the asset/work is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹1.87 lakh	**11.13** (13.00-1.87)
9	CT, PT & CVT	35.00	**On replacement basis.** As per protection audit report conducted by Power Grid, HPSEB & NHPC , for strengthening of the grid these items are required . The existing sets are installed with machines. Due to continuous use they have out lived their life and required to be replaced with appropriate class. Cost estimate is based on actual SO placed for 3 nos. of PT's, 2 CVT's & 6 CT's.	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹1.38 lakh	**33.62** (35.00-1.38)

10	Oil Centrifugal machine	11.00	**On replacement basis.** The existing machines are very old and have outlived their useful life. To facilitate the maintenance activities of the generating units and further to reduce the down time of the machines, the existing old oil centrifuging machines are required to be replaced by new one. Cost estimate is based on DGS&D rate contract for year 2011 suitably escalated to reach to price level of 2014-15.	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹6.28 lakh	**4.72** (11.00-6.28)
11	Numerical protection Relay.	41.00	**On replacement basis.** This will avoid the unwanted tripping as well as reduce the down time of the machine. At present, the main 2 protection of 220 kV Pong & Jassure feeders is being facilitated through old electromechanical relays available with the power station/. As per protection audit report, for strengthening the grid all the outdated existing magnetic relays will be replaced with numerical relays. Cost estimate is based on budgetary offer received from M/s Alstom.	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹1.36 lakh	**39.64** (41.00-1.36)
12	Submersible pump for drainage system (3 nos.)	42.00	**On replacement basis.** Reliable drainage pumps are required for evacuate the seepage water from power house and avoid the flooding condition in emergency .The existing drainage pumps are of VT type and almost 20 years old. Due to continuous use and wear & tear, these pumps have out lived their useful life and now are beyond economic repair. Further, the pumps have become very inefficient and the spares are also not easily available due to old	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹3.05 lakh	**38.95** (42.00-3.05)

			design. As per energy audit report conducted by CPRI at BSPS all the inefficiency pumps will be replaced with energy efficiency one. These are required to be replaced by new submersible pumps. Cost estimate is based on actual SO placed for the same types of pumps in year 2012 and further escalated @ 6% per year. The gross value of old assets are indicated as Rs. 2,26,241/-, Rs. 44,995/- & Rs. 33,931		
13	Pumps for water supply	14.00	**On replacement basis.** The existing water supply pumps are very old and outlived its useful life due to continuous use and wear & tear. Further, the required spares are also not easily available. It is, therefore, required to be replaced by new one. Cost estimate is based on budgetary offer received.	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹3.51 lakh	**10.49** (14.00-3.51)
14	Purchase of Fire Tender (Tata)	36.00	Earlier, this proposal has been inadvertently missed. However on requirement this proposal has been added on replacement basis. The existing fire tender is very old and outlived it's useful life. It is, therefore, proposed to be replaced by new one. Cost estimate is based on quotation available in the market.	**Allowed** under Regulation 14(3) (viii) since the assets are considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹2.49 lakh	**33.51** (36.00-2.49)
Total amount claimed		**1107.18**		**Total amount allowed**	**1071.70**

2015-16

(₹ in lakh)

Sl. No.	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Digital Water & oil level indicators for Drainage/Dewatering sump and oil sumps of TB & OPUs with remote display	30.00	**New Work.** Water level sensors in the drainage & dewatering sump and oil level sensors in the Thrust Bearing/ OPU's sumps are critical piece of equipment for the auto operation (starting/ stopping) of the pumps and for remote display in the control room. Cost estimate is based on recent purchase made for same type of item.	**Not allowed** as the asset is of a minor nature	**0.00**
2	DG SET- 2 Nos. (500 kVA each)	73.00	**On replacement basis.** The DG sets are very critical equipment for hydro power plant as they are the only source of power in case of black start in the event of grid failure. At present, 2 nos. of DG sets, each of 500 kVA capacity, are available with the power house. These are almost 23 years old. Due to continuous use and wear & tear the efficiency has been reduced drastically. In fact the DG sets have been de-rated substantially. Therefore, it is proposed to replace the existing 2 x 500 kVA DG sets with the new sets. Cost estimate is based on DGS&D rate contracts for DG set + installation charges for year 2013 suitably escalated @6% per year for two years to reach price level of year 2014-15.	**Allowed** under Regulation 14(3) (viii) as the asset/ work is already approved and is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as **₹53.34 lakh**	**19.66** (73.00-53.34)
3	Generator Transformer, 25MVA,	550.00	**On replacement basis.** The existing GTs are in continuous service for	**Allowed** under Regulation 14(3) (viii) as the asset is	**513.32** (550.00-36.68)

	11KV/220KV, single phase (Qty-3)		almost 32 years. Now they have out lived their life. The insulation strength has decreased substantially. Further, due to old design, the existing transformers have higher losses which are not appropriate in the prevailing scenario of reduced allowed auxiliary consumption and transformer loss (1% in case of BSPS).	already approved and is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as **₹36.68 lakh**	
4	Gravity water supply line from Rakhalu to Surangani including tank	25.00	**New Work.** This available water source can be utilized to fulfill some of the requirement of water supply for Surangani colony and that too through gravity i.e. without any pumping. There is a natural water source available at the place named Rakhalu near Surangani from which water is provided to New quarters at Jaddu. This place is at higher elevation than Surangani.	**Allowed** under Regulation 14(3) (viii) since the asset would benefit the employees working and accordingly contribute to the efficient operation of the generating station.	**25.00**
5	Lathe Machine	44.00	**On replacement basis.** The existing machine is very old and due to continuous wear and tear the machine has out lived it's life. Therefore, require to be replaced by new one. Cost estimate is based on DGS&D rate contract for year 2013 and escalated @ 6% per year for 3 years to reach the price level of year 2015-16	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as **₹1.39 lakh**	**42.61** (44.00-1.39)
6	Fire Fighting system (pump, valve etc.)	22.00	**On replacement basis.** These are required to be replaced by new one for the efficient and reliable operation of the system. The existing pumps, valves available with the fire fighting system are almost 32 years. Due to continuous use and wear	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹1.73	**20.27** (22.00-1.73)

			& tear, these items have become very inefficient. For 3 pumps, budgetary offer of year 2013 is considered with an escalation@ 6% per year for 2 years to each cost of 2015. For 6 valves, previous purchase cost in the year 2009 with escalation @6% per year for total 6 years is considered.	**lakh**	
7	Cooling water pump set (4 nos)	160.00	**On replacement basis.** As per energy audit report conducted by CPRI at BSPS all the inefficiency pumps will be replaced with energy efficiency one. These will also provide the better cooling to the machines so that efficiency of machine is increased. The existing cooling water pumps are almost 20 years old. Due to continuous use and wear & tear, these pumps have out lived their use full life and now are beyond economic repair. Further, the pumps have become very inefficient and the spares are also not easily available due to old design. These are required to be replaced by new one. Cost estimate is based on budgetary offer received from M/s Grundfos Pumps I Pvt. Ltd.	**Allowed** under Regulation 14(3) (viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹8.60 lakh	**151.40** (160.00-8.60)
8	CCTV with recording facility for power house, Dam, Siul & bhaledh sites	29.00	**On replacement basis.** This is required for security purpose. As the Bairasiul Power Station is sensitive area from the security point of view. It is necessary to install surveillance system having CCTV cameras with recording facility at various sites to effectively	**Allowed** under Regulation 14(3)(viii) since the asset is considered necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹5.16	**23.84** (29.00-5.16)

			secure the power station and ultimately the nation's interest. The existing cameras are very old and need replacement with high resolution cameras. Cost estimate is based on SO placed by Uri PS in the year 2008 suitably escalated @6% per year for 7 years to reach to the price level of 2015-16.	lakh	
Total amount claimed		**933.00**		**Total amount allowed**	**796.10**

<u>2016-17</u>

(₹in lakh)

Sl. No.	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	312/320 kVA DG set for dam	25.00	**On replacement basis.** The existing DG Set is almost 29 years old and outlived it's useful life due to continuous use and wear & tear. Besides, the spares are also not easily available for the maintenance of the same. It is, therefore, required to be replaced by new one. Estimated cost is based on DGS&D rate of DG set + installation cost for year 2013 suitably escalated @6% per year for 4 years.	**Allowed** under Regulation 14(3) (iii) for safe and successful operation of the generating station. The gross value of old asset is indicated as ₹6.19 lakh	18.81 (25.00-6.19)
2	Purchase of Fire Tender (Tata)	36.00	**On replacement basis.** The existing fire tender is very old and outlived it's useful life due to continuous use and wear & tear. It is, therefore, required to be replaced by new one. Cost estimate is based on budgetary offer received from M/s Tata Motors & M/s Ambala Coach Builders for Truck Chassis & fabrication of fire tender respectively.	**Allowed** under Regulation 14(3) (iii) for safe and successful operation of the generating station. The gross value of old asset is indicated as ₹17.59 lakh	18.41 (36.00-17.59)
Total amount claimed		**61.00**		**Total amount allowed**	**37.22**

2017-18

(₹in lakh)

Sl. No.	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount allowed
1	Purchase of TATA Truck	18.00	**On replacement basis**. The existing truck has outlived its useful life and required to be replaced by new one. Basic cost of ₹13.32 lakh is taken as per budgetary offer received in the year 2012 and further escalated @ 6 % per year for 6 years to reach the cost in 2017.	**Allowed** under Regulation 14(3) (iii) for safe and successful operation of the generating station. The gross value of old asset is indicated as **₹5.92 lakh**	**12.08** (18.00-5.92)
2	Replacement of 2 Nos. Tata Tippers	44.00	**On replacement basis.** The existing tippers have outlived their useful life and required to be replaced by new one. The cost of one no. Tata Tipper purchased in year 2013 with FI of ₹17.7 lacs is escalated @ 6% per year for four years to reach the cost of year 2017-18.	**Allowed** under Regulation 14(3) (iii) for safe and successful operation of the generating station. The gross value of old asset is indicated as **₹33.90 lakh**	**10.10** (44.00-33.90)
3	Replacement of Dozer	85.00	**On replacement basis.** The existing dozer has outlived their useful life and required to be replaced by new one. Rates are based on budgetary offer received from M/s BEML for year 2014-15 suitably escalated @ 6% per year for three years to reach to the price level of year 2017-18.	**Allowed** under Regulation 14(3) (iii) for safe and successful operation of the generating station. The gross value of old asset is indicated as **₹51.12 lakh**	**33.88** (85.00-51.12)
4	Replacement of 1 no JCB back hoe loader	33.00	**On replacement basis**. The existing JCB has outlived their useful life and required to be replaced by new one. Cost estimate is based on actual SO placed to M/s Tata Hitachi in the year 2014 for ₹26.29 lakh suitably escalated @ 6% per year for 4 years.	**Allowed** under Regulation 14(3) (viii) as the asset is considered necessary for successful and efficient operation of the generating station. The gross value of old asset is indicated as **₹15.26 lakh**	**17.74** (33.00-15.26)
5	Pumps for water supply	8.00	**On replacement basis.** The existing water supply pumps are very old and outlived it's useful life due to continuous	**Allowed** under Regulation 14(3) (viii) as the asset is considered	**6.24** (8.00-1.76)

			use and wear & tear. Further, the required spares are also not easily available. It is, therefore, required to be replaced by new one. Cost estimate is based on budgetary offer received for the year 2014-15 suitably escalated to reach to the price level of 2017-18.	necessary for successful and efficient operation of the generating station. The gross value of old asset is indicated as ₹1.76 lakh	
6	Construction of 6 room Field Hostel at Nagrot/ Tissa	40.00	**On replacement basis.** Field Hostel is required against replacement of existing rest house at Chilli Colony which was constructed during 1979. Moreover, the renovation, modernization and Up gradation of the power station will be taken up by the year 2017-18. There will be need for accommodation of personnel engaged in the RMU work in addition to existing availabilities. Cost is as per engineering estimate.	**Allowed** under Regulation 14(3) (viii) as the work is considered necessary for successful and efficient operation of the generating station. The gross value of old asset is indicated as ₹5.10 lakh	**34.90** (40.00-5.10)
Total amount claimed		**228.00**		**Total amount allowed**	**114.94**

2018-19

(₹in lakh)

Sl. No	Assets/ Works	Amount Claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
13	Pumps for water supply	8.00	**On replacement basis.** The existing water supply pumps are very old and outlived it's useful life due to continuous use and wear & tear. Further, the required spares are also not easily available. It is, therefore, required to be replaced by new one. Cost estimate is based on budgetary offer received.	**Allowed** under Regulation 14(3) (viii) as the asset is already approved and is necessary for efficient operation of the generating station. The gross value of old asset is indicated as ₹2.89 lakh	**5.11** (8.00-2.89)
Amount claimed		**8.00**		**Amount allowed**	**5.11**

60. Based on the above, the 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
1071.70	796.10	37.22	114.94	5.11

Capital Cost for 2014-19

61. As stated, the closing capital cost as on 31.3.2014 is ₹18908.17 lakh. The same 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	18908.17	18979.87	20775.97	20813.19	20928.13
Additional Capital Expenditure allowed	1071.70	796.10	37.22	114.94	5.11
Capital Cost as on 31st March of the year	**19979.87**	**20775.97**	**20813.19**	**20928.13**	**20933.24**

Debt-Equity

62. 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.

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

(2) The generating company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilization made or

proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt-equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation."

63. The petitioner has submitted that the additional capital expenditure has been proposed to be financed through internal resources and others. Accordingly, in terms of the clause (5) of Regulation 19 above, the debt-equity ratio of 70:30 has been considered on the admitted additional capital expenditure, for the purpose of tariff.

Return on Equity

64. 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.

65. 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:

Rate of pre-tax return on equity = 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."

66. The petitioner has considered the Rate of Return on Equity as under:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate	16.5%	16.5%	16.5%	16.5%	16.5%
Tax Rate (MAT)	20.9605%	20.9605%	20.9605%	20.9605%	20.9605%
Rate of ROE (pre-tax)	20.876%	20.876%	20.876%	20.876%	20.876%

67. Based on the above, Return on Equity has been computed as under:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Equity	8134.71	8456.22	8695.05	8706.21	8740.70
Addition due to additional capital expenditure	321.51	238.83	11.17	34.49	1.53
Closing Equity	8456.22	8695.05	8706.21	8740.70	8742.23
Average Equity	8295.46	8575.63	8700.63	8723.45	8741.46
Return on Equity	**1731.76**	**1790.25**	**1816.34**	**1821.11**	**1824.87**

Interest on Loan

68. 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 upto the date of de-capitalisation 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 re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:

Provided that the 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."

69. The normative loan of the project has already been repaid. The normative loan on account of admitted additional capital expenditure during the respective year of the tariff period have also been considered as paid fully, as the admitted depreciation is more than the amount of normative loan in these years, except for the year 2017-18. During 2017-18, the addition in normative loan due to additional capitalization is ₹ 80.47 lakh, whereas, the total admitted depreciation for the year is ₹80.28 lakh. However, as the difference in addition in normative loan and the repayment is not significant, i.e. ₹0.18 lakh only, the normative loan amount for the year has been considered as "Nil".

Depreciation

70. 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 upto 31.3.2014 from the gross depreciable value of the assets.

(7) The generating company or the transmission license, 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) alongwith 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."

71. The COD of the generating station is 1.4.1995. As such, the generating station has completed 12 years of operation as on 1.1.1994. Moreover, the generating station shall complete its useful life on 31.3.2017. The petitioner has calculated depreciation in two stages. In the first stage, the remaining depreciation of the generating station (as on 31.3.2014) has been claimed within its useful life as per the provisions of the 2014 Tariff Regulations. In second stage, the depreciation on the additional capitalization has been calculated by claiming maximum depreciation in 12 years as allowed by the Commission in case of normal projects, and the remaining depreciation on the additional capitalization after 12 years to be spread over the balance useful life under R&M.

72. In the case of approval of Singrauli STPS of NTPC referred to by the petitioner, the Commission in order dated 25.8.2011 in Petition No.225/2009 had allowed depreciation of the assets capitalized during the terminal year as per the rate specified in Appendix-III of the 2009 Tariff Regulations for the reasons stated therein. The relevant portion of the said order is extracted as under:

"50. The additional capitalization of Dry Ash Evacuation and Transportation Plant (DAETP) for Stage-II and Ash water Recirculation system for S1 Dyke has been allowed for the years 2011-12 and 2012-13 under Regulation 9(2)(ii) of the 2009 Tariff Regulations i.e. Change in law, on the ground that these assets are a statutory requirement in compliance with environmental norms/notification of MOE&F, Govt. of India. As on 1.4.2009, the weighted average life of the generating station is 22.8 years In other words, the generating station has completed its useful life in the year 2011-12. The petitioner had initially claimed depreciation of 90% of average additional capital expenditure. Subsequently vide its affidavit it has requested to consider the life of the asset after commissioning as 8 years commensurate with the loan repayment period currently offered to the petitioner. However, ***the actual funding details corresponding to the projected additional capital expenditure have not been made available to the Commission.*** *Hence as per calculation, the depreciation rate would work out to 11.25% on straight line method.*

51. We have given a serious thought on this issue. Since these assets are being capitalized during the terminal year of the generating station, we are of the view that allowing 90% of the depreciation would not be in the interest of the beneficiaries and therefore these assets should be depreciated at the rates specified in Appendix-III of the 2009 Tariff Regulations. ***The petitioner has not indicated the period for which the life of the generating station would be extended beyond its useful life.*** *In the absence of the said information, the Commission cannot decide as to how the expenditure incurred on DAETP and Ash water recirculation system during the terminal year of the life of the generating station would be serviced in tariff. Therefore, the Commission considers it appropriate to allow the depreciation of the assets capitalized during the terminal year as per the rate specified in Appendix-III of the 2009 Tariff Regulations. The petitioner would be required to run the generating station for sufficiently longer period to recover the full depreciation of the said assets. This will be in the interest of the beneficiaries as they will not be overburdened with payment of admissible depreciation during the terminal year of the generating station."*

73. It emerges from the above that in the case of Singrauli TPS of NTPC the depreciation of the assets capitalized during the terminal year was allowed as per the rate specified in Appendix-III of the 2009 Tariff Regulations also taking into account the absence of any information on the actual funding details corresponding to the projected additional capital expenditure and the period for which the life of the generating station is to be extended beyond its useful life. However, in the present case of the petitioner NHPC, the entire additional capitalization in respect of the generating station is projected to be funded from internal resources and the useful life of the generating station is proposed to be extended by 25 years. As such, no loan repayment is linked with the additional capital expenditure. In this background, it would not be prudent to allow the recovery of the depreciation within the span of initial 12 years, as claimed by the petitioner. Hence, depreciation on the additional capitalization allowed during 2014-19 is calculated by spreading over the depreciable asset value over the extended life of the generating station, i.e. 25 years. However, for the depreciable value as on 1.4.2009, depreciation has been allowed till the completion of 35 years, i.e. till 2016-17. Accordingly, the depreciation has been computed as follows:

(₹ in lakh)

A- Without the impact of additional capitalisation during 2014-19					
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Gross Block as on 31.3.2014	18908.17	18908.17	18908.17	18908.17	18908.17
Additional capital expenditure during 2014-19	0.00	0.00	0.00	0.00	0.00
Closing gross block	18908.17	18908.17	18908.17	18908.17	18908.17
Average gross block	18908.17	18908.17	18908.17	18908.17	18908.17
Depreciable Value	16883.95	16883.95	16883.95	16883.95	16883.95
Balance useful life of the asset (yrs)	3	2	1	-	-
Remaining depreciable value	2783.35	1854.94	962.37	0.00	0.00
Depreciation (a)	**927.78**	**927.47**	**962.37**	**0.00**	**0.00**

(₹ in lakh)

B:- Depreciation on additional capitalisation during 2014-19					
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Gross Block as on 31.3.2014	0.00	1071.70	1867.80	1905.02	2019.97
Additional capital expenditure during 2014-19	1071.70	796.10	37.22	114.94	5.11
Closing gross block	1071.70	1867.80	1905.02	2019.96	2025.08
Average gross block	535.85	1469.75	1886.41	1962.49	2022.53
Depreciable value	482.27	1322.78	1697.77	1766.24	1820.27
Balance useful life	25.00	24.00	23.00	22.00	21.00
Depreciation (b)	**19.29**	**55.12**	**73.82**	**80.28**	**86.68**

(₹ in lakh)

Total Depreciation allowed					
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
A:- Without considering the impact of additional capitalisation during 2014-19	927.78	927.47	962.37	0.00	0.00
B:- Depreciation on additional capitalisation during 2014-19	19.29	74.41	148.22	228.51	315.19
Total depreciation allowed (A+B)	**947.07**	**982.59**	**1036.19**	**80.28**	**86.68**

O&M Expenses

74. 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
8696.25	9274.03	9890.19	10547.30	11248.06

Interest on working capital

75. 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.*

76. Accordingly, the receivables are allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Two months of annual fixed cost	1986.19	2103.84	2225.79	2179.19	2304.16

77. Accordingly, the following maintenance spares are allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of maintenance spares (15% of O & M)	1304.44	1391.10	1483.53	1582.10	1687.21

78. Accordingly, the O&M Expenses for one month are allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
O & M for one month	724.69	772.84	824.18	878.94	937.34

Rate of interest on working capital

79. 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."*

80. 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

81. 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	1304.44	1391.10	1483.53	1582.10	1687.21
O & M expenses	724.69	772.84	824.18	878.94	937.34
Receivables	1986.19	2103.84	2225.79	2179.19	2304.16
Total	4015.32	4267.78	4533.50	4640.22	4928.71
Interest on Working Capital	**542.07**	**576.15**	**612.02**	**626.43**	**665.38**

82. Accordingly, the annual fixed charges approved for the generating station for the period from 1.4.2014 to 31.3.2019 is summarized as under**:**

(₹ In lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	1731.76	1790.25	1816.34	1821.11	1824.87
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	947.07	982.59	1036.19	80.28	86.68
Interest on Working Capital	542.07	576.15	612.02	626.43	665.38
O & M Expenses	8696.25	9274.03	9890.19	10547.30	11248.06
Annual Fixed Charges	**11917.15**	**12623.01**	**13354.74**	**13075.12**	**13824.98**

Normative Annual Plant Availability Factor

83. 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% has been considered for this generating station.

Design Energy

84. The Commission in its order dated 15.6.2011 in Petition No.90/2010 had approved the annual Design Energy (DE) of 779.28 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 hereunder:

Month	Design Energy (MUs)
April	97.85
May	106.00
June	92.8
July	109.24
August	115.08
September	59.86
October	35.39
November	25.22
December	22.21
January	23.81
February	29.43
March	62.39
Total	**779.28**

Application Fee and Publication Expenses

85. 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 the filing fees for the period 2014-19 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The petitioner has incurred charges towards publication of the said tariff petition in the newspapers. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations, we direct that the petitioner shall be entitled to recover the filing fees and the expenses incurred on publication of notices for the period 2014-19 directly from the respondents.

86. 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.

87. Petition No. 235/GT/2014 is disposed of in terms of the above.

-Sd/-	***-Sd/-***	***-Sd/-***
(A.S. Bakshi)	**(A.K.Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Chairperson**