CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 349/GT/2014

Coram:

Shri A. S. Bakshi, Member
Dr. M. K. Iyer, Member

Date of Hearing :6.9.2016
Date of Order :23.9.2016

In the matter of:

Approval of tariff for Chandrapura Thermal Power Station, Unit-I to III (3 x 130 MW) for the tariff period from 1.4.2014 to 31.3.2019.

And in the matter of

Damodar Valley Corporation,
DVC Towers, VIP Road
Kolkata **………Petitioner**

Versus

1. West Bengal State Electricity Distribution Company Limited
   Block 'DJ' Sector-11, Salt Lake City,
   Kolkata-700 091

2. Jharkhand BijliVitran Nigam Limited
   Engineering Building, HEC, Dhurwa,
   Ranchi- 834 004 **……….Respondents**

Parties present:

For Petitioner: Shri M. G. Ramachandran, Advocate, DVC
Ms Anushree Bardhan, Advocate, DVC

Shri P. Bhattachary, DVC
Shri Subrata Ghosal, DVC
Shri S. Ganguly, DVC
ShriD.K Aich, DVC
ShriA.Biswas, DVC

For Respondents: None

ORDER

This petition has been filed by the petitioner, Damodar Valley Corporation (DVC), for approval of tariff of Chandrapura Thermal Power Station, Units I to III (3 x 130 MW) (hereinafter referred to as "the generating station") for the tariff period 2014-19 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as "the 2014 Tariff Regulations").

2. The petitioner is a statutory body established by the Central Government under the Damodar Valley Corporation Act, 1948 (hereinafter referred to as the 'DVC Act') for the development of the Damodar Valley, with three participating Governments, namely, the Central Government, the Government of West Bengal and the Government of Jharkhand. The dates of commercial operation of the different Units of the generating station is as under:-

Unit - I :	October, 1964
Unit - II :	May, 1965
Unit - III :	July,1968

3. In Petition No. 275/GT/2012 filed by the petitioner for determination of tariff of the generating station for the tariff period 2009-14, the Commission vide order dated

7.8.2013, had determined the annual fixed charges based on actual additional capital expenditure for the years 2009-10, 2010-11 and 2011-12 and projected additional capital expenditure for the years 2012-13 and 2013-14. Thereafter, the Commission vide order dated 29.7.2016 in Petition No. 470/GT/2014 has revised the annual fixed charges of the generating station for the tariff period 2009-14, after truing-up exercise in terms of Regulation 6(1) of the 2009 Tariff Regulations, as summarized under.

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	2252.55	2468.71	1622.91	1097.78	748.18
Interest on Loan	23.21	21.99	0.00	0.00	0.00
Return on Equity	2486.90	2191.92	2812.71	2850.12	2305.02
Interest on Working Capital	1700.65	1731.90	1764.45	1788.35	1808.55
O&M Expenses	10237.50	10822.50	11442.60	12097.80	12788.10
Cost of secondary fuel oil (for coal-based & lignite fired generating stations only)	2424.39	2424.39	2431.03	2424.39	2424.39
Sub-Total	**19125.20**	**19661.41**	**20073.71**	**20258.44**	**20074.24**
Share of Common Office Expenses	201.23	213.05	124.76	88.00	67.91
Additional O&M on account of Ash Evacuation, Mega Insurance, CISF Security and Share of subsidiary activities	1330.58	1422.54	1482.80	1300.09	1535.59
Pension & Gratuity Contribution	1076.66	1076.66	1076.66	1076.66	1076.66
Share of Sinking Fund	605.94	585.57	560.35	557.23	596.24
Adjustment of secondary fuel oil	(-)305.69	(-)351.95	615.62	942.91	701.30
Total Annual Fixed Charges	**22033.93**	**22607.28**	**23933.90**	**24223.34**	**24051.94**

4. The annual fixed charges determined vide orders dated 9.7.2013 and 29.7.2016 are subject to the final outcome of the Civil Appeals pending before the Hon'ble Supreme Court in respect of the determination of tariff of the generating stations and inter-state

transmission systems of the petitioner by the Commission for the periods 2006-09 and 2009-14.

5. The petitioner vide affidavit dated 3.9.2014 has sought approval of tariff of the generating station for the tariff period 2014-19 in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner for the tariff period 2014-19 are as under:

Capital Cost

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	34697.80	35243.91	35629.32	35842.48	35903.49
Additional capital expenditure (Net of de-capitalization)	546.10	385.41	213.16	61.00	71.60
Closing Capital Cost	**35243.91**	**35629.32**	**35842.48**	**35903.49**	**35975.09**
Average Capital Cost	**34970.85**	**35436.61**	**35735.90**	**35872.98**	**35939.29**

Annual Fixed Charges

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	463.07	448.79	297.15	134.03	62.36
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	2985.25	3012.65	3030.26	3038.33	3042.33
Interest on Working Capital	3969.31	4084.70	4146.27	4212.06	4281.99
O & M Expenses	13993.20	14874.60	15810.60	16805.10	17862.00
Compensation Allowance	390.00	390.00	390.00	390.00	390.00
Capital Spares	120.00	50.00	50.00	50.00	0.00
Share of Common Office Expenditure	81.42	75.91	96.72	141.92	160.81
Share of P&G & impact of pay revision	2651.24	2887.33	3160.10	3442.91	3726.29
Share of Additional O&M due to ash evacuation, Mega insurance CISF expenditure & expenditure for Subsidiary activity	2246.64	4694.55	4694.55	4694.55	4694.55
Total	**26900.12**	**30518.53**	**31675.64**	**32908.89**	**34220.22**

6. We directed the petitioner to submit certain additional information and in compliance with the directions of the Commission, the petitioner vide affidavit dated 1.9.2016 has filed additional information and has served copies on the respondents. None of the respondents have filed reply in this matter. Taking into consideration the submissions and documents available on record, we proceed to consider the claims of the petitioner and determine the tariff in respect of this generating station for the tariff period 2014-19 as stated in the subsequent paragraphs.

Capital cost as on 1.4.2014

7. 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 of the 2014 Tariff Regulations provides as under:

> *"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 excludingliability, if any, as on 1.4.2014;*
>
> *(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and*
>
> *(c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 15."*

8. The annual fixed charges claimed by the petitioner are based on opening capital cost of ₹ 34697.80lakh as on 1.4.2014 as against the capital cost of ₹ 33907.10lakh as on 31.3.2014 admitted by the Commission vide order dated 29.7.2016 in Petition No. 470/GT/2014. However, the closing capital cost of ₹33907.10 lakh as on 31.3.2014as approved by the order dated 29.7.2016 has been considered as the opening capital cost as on 1.4.2014.

Projected Additional Capital Expenditure

9. 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:

……

10. The break-up of the projected additional capital expenditure claimed during the tariff period 2014-19 is summarized as under:

(₹ in lakh)

S.No	Head of Works/ Equipment	Regulation	Additional Capital Expenditure Claimed	Year of commissioning of old asset	De-capitalization	Depreciation recovered
	2014-15					
1	LP Heater #4 Tubenest assembly-(1 nos.)	54 & 55	35.00	1968	1.46	1.31
2	Procurement of 1 no. ATR	54 & 55	500.00	1968	28.89	26.00
3	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54 & 55	19.00	1968	1.10	0.99
4	Procurement Erection Commissioning 220 kV/132 kV/33 kV/CT/PT 0.2 Class	14(3)(ii)	25.00	1968	1.44	1.30
	Total				**32.90**	**29.61**
	2015-16					
1	Vibro Feeders for Coal Handling Plant	54 & 55	20.00	1964	0.57	0.51
2	Fire Tender (2 nos.)	14(3)(ii)	40.00	1984	7.18	6.46
3	Portable Fire pump (2 nos.)	14(3)(ii)	16.00	1990	4.50	4.05
4	Spiro meter (1 number)	14(3)(ii)	1.10	-	-	-
5	Audiometry machine (1	14(3)(ii)	1.20	-	-	-

	number)					
6	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/CT/PT 0.2 Class.	14(3)(ii)	300.00	1968	16.54	14.89
7	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54 & 55	38.00	1968	2.10	1.89
	Total		**416.30**		**30.89**	**27.79**
	2016-17					
1	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/CT/PT 0.2 Class.	14(3)(ii)	175.00	1968	9.21	8.29
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54 & 55	50.00	1968	2.63	2.37
	Total		**225.00**		**11.84**	**10.65**
	2017-18					
1	Vibro Feeders for Coal Handling Plant	54 & 55	10.00	1964	0.29	0.25
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54 & 55	54.00	1968	2.71	2.44
	Total		**64.00**		**3.00**	**2.69**
	2018-19					
1	Vibro Feeders for Coal Handling Plant	54 & 55	10.00	1964	0.29	0.25
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54 & 55	65.00	1968	3.11	2.80
	Total		**75.00**		**3.40**	**3.05**
	Total Claimed		**1875.78**		**838.34**	**747.15**

11. The petitioner vide affidavit dated 3.9.2014 has projected additional capital expenditure which are considered necessary for efficient operation of generating station. The petitioner has also claimed additional capital expenditure towards certain assets/items under Regulation 14(3)(ii) of the 2014 Tariff Regulations and certain other

assets under Regulation 14 read with Regulation 54 (Power to relax) & 55 (Removal of difficulties) of the 2014 Tariff Regulations.

12. We now examine the claim of the petitioner for additional capital expenditure under Regulation 14 read with Regulation 54 and 55 of the 2014 Tariff Regulations as under:

13. Regulation 54 and 55 of the 2014 Tariff Regulations provides as under:

> *"54. Power to Relax: The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person.*
>
> *55. Power to Remove Difficulty:*
>
> *If any difficulty arises in giving effect to the provisions of these regulations, the Commission may, by order, make such provision not inconsistent with the provisions of the Act or provisions of other regulations specified by the Commission, as may appear to be necessary for removing the difficulty in giving effect to the objectives of these regulations."*

(□ in lakh)

S.No	Head of Works/ Equipment	Additional Capital Expenditure Claimed	De-capitalization	Net additional capital expenditure claimed
	2014-15			
1	LP Heater #4 Tubenest assembly-(1 nos.)	35.00	1.46	33.54
2	Procurement of 1 no. ATR	500.00	28.89	471.11
3	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	19.00	1.10	17.90
	Total	**554.00**	**31.45**	**522.55**
	2015-16			
1	Vibro Feeders for Coal Handling Plant	20.00	0.57	19.43
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	38.00	2.10	35.90
	Total	**58.00**	**2.67**	**55.33**
	2016-17			
1	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	50.00	2.63	47.37
	Total	**50.00**	**2.63**	**47.37**
	2017-18			
1	Vibro Feeders for Coal Handling Plant	10.00	0.29	9.72
2	Procurement ,erection and commissioning of	54.00	2.71	51.29

	145 kV, outdoor SF6 Gas circuit breakers			
	Total	**64.00**	**3.00**	**61.00**
	2018-19			
1	Vibro Feeders for Coal Handling Plant	10.00	0.29	9.72
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	65.00	3.11	61.89
	Total	**75.00**	**3.40**	**71.61**
	Total Claimed	**801.00**	**43.15**	**757.86**

LP Heater #4 tubeset assembly

14. The petitioner has claimed projected additional capital expenditure of ₹ 35.00 lakh along with de-capitalization of ₹ 1.46 lakh in 2014-15 and has prayed for considering the same under Regulation 54 and 55 of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that this item has already been allowed during the tariff period 2009-14, but the work could not be taken up/completed as the additional capital expenditure for the generating station was made in a conservative way in the absence of tariff order allowing additional capital expenditure for the tariff period 2009-14. The petitioner has submitted that more than 25% of the tubes have been plugged due to leakage and due to this, the efficiency of the Heat Exchanger has drastically come down and the same is affecting the feed water temperature (temperature reduced from 148 ^{0}C to 141 ^{0}C). The petitioner also submitted that there is sub heat rate loss of 6 kCal/kwh.

Procurement of one Auto Transformer Rectifier (ATR)

15. The petitioner has claimed projected additional capital expenditure of ₹ 500.00 lakh in 2014-15 along with de-capitalization of ₹ 28.89 lakh and has prayed for considering the same under Regulation 54 and 55 of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that 150 MVA ATR#4 of TELK make has been

taken out of service in September, 2012 due to internal fault in the transformer and after conducting internal inspection by the OEM, it was advised that the transformer was not in a condition to be put in service. The petitioner has also submitted that three (3) numbers of auto transformers are required to be in service at this generating station to meet power demand. The petitioner has further submitted that the cost of repair of the transformer is very high and hence it has proposed to procure one ATR..

Procurement, erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers

16. The petitioner has claimed projected additional capital expenditure of ₹ 19.00 lakh along with de-capitalization of ₹ 1.10 lakh in 2014-15, ₹ 38.00 lakh additional capital expenditure along with de-capitalization of ₹ 2.10 lakh in 2015-16, ₹ 50.00 lakh additional capital expenditure along with de-capitalization of ₹ 2.63 lakh in 2016-17, ₹ 54.00 lakh additional capital expenditure along with de-capitalization of ₹2.71 lakh in 2017-18 and additional capital expenditure of ₹65.00 lakh along with de-capitalization of ₹3.11 lakh in 2018-19 for this asset and has prayed for consideration of the same under Regulation 54 & 55 of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that in this generating station 22 number of M/s BHEL make 132 kV breakers are in service for more than 20 years. The petitioner has further submitted that M/s BHEL is not in a position to provide spares support as these breakers are now obsolete and not in their manufacturing range. The petitioner has now proposed to replace two breakers in the year 2014-15, four breakers in the year 2015-16, five breakers each during the years 2016-17 and 2017-18.

Vibro feeders for coal handling plant

17. The petitioner has claimed projected additional capital expenditure of ₹ 20.00 lakh along with de-capitalization of ₹ 1.10 lakh in 2015-16, projected additional capital expenditure of ₹ 10.00 lakh along with de-capitalization of ₹ 0.29 lakh each during the year 2017-18 & 2018-19 and has prayed for consideration of the same under Regulation 54 & 55 of the 2014 Tariff Regulations. The petitioner has submitted that Vibro feeders are running since inception and also the spare parts are not available and therefore has proposed to replace the old vibro feeders with a new one to avoid breakdown of the system. The petitioner has further submitted that most of these assets are in service since inception and due to prolonged operation, assets has been affected due to thermal stress, erosion, material deformity etc. and as a result, these old assets has become prone to frequent failures. The petitioner has also submitted that this item is already allowed during the tariff period 2009-14, but the work could not be taken up/completed as the additional capital expenditure for the station was made in a conservative way in absence of tariff order allowing additional capital expenditure for the tariff period 2009-14.

18. We have examined the additional capital expenditure claimed by the petitioner under Regulation 54 and 55 of the 2014 Tariff Regulations. The petitioner has claimed projected additional capital expenditure for this generating station after the cut-off date on the ground that these are essential for efficient operation and sustenance of operation of the generating station. Regulation 14(3)(vii) of the 2014 Tariff Regulations provides for consideration of expenditure due to any additional work which has become necessary for successful and efficient plant operation for generating station other than

coal/lignite based stations. In other words, the additional capital expenditure which are necessary for efficient operation of the generating station is applicable for hydro generating stations. the said Regulation provides that the claim is required to be substantiated with the technical justification duly supported by documentary evidence like test results/ technical report warranting the replacement of the assets due to obsolescence. In the present case, the petitioner has claimed projected additional capital expenditure as replacement of the old assets due to obsolescence as the same is necessary for the generating station. However it has not submitted any document like technical report etc. substantiating the need for replacement of the asset. As regards the capitalization towards LP heater tubeset assembly and procurement, erection and commissioning of145 kV outdoor SF6 Gas Circuit Breakers, it is observed that these assets for which the replacement has been sought, has been commissioned during the year 1968 and has completed more than 45 years of service. As regards to Vibro feeders for coal handling plant, it is observed that the said asset had been commissioned during the year 1964 and had completed more than 50 years of service. Considering the fact that these assets have completed more than 45 years of service and their replacement is necessary for efficient operation of the generating station, we are inclined to allow the capitalization of expenditure by relaxing the Regulation 14(3)(vii) of the 2014 Tariff Regulations, in exercise of its Power to relax under Regulation 54 of the 2014 Tariff Regulations as a special case. Accordingly, the petitioners claim for additional capital expenditure for LP heater #4 tubeset assembly for the year 2014-15, 145 kV outdoor SF6 Gas Circuit Breakers for the years 2014-15, 2015-16, 2016-17 & 2017-18 and Vibro feeders for coal handling plant for the years 2015-16, 2017-18 & 2018-19 is allowed. However, allowed expenditure above is subject to the petitioner submitting the OEM/technical committee report for replacement of these assets due to obsolescence at the time of truing up in terms of Regulation 8 of the 2014 Tariff Regulations.

19. As regards the procurement of one ATR during 2014-15, it is noticed that the asset has been taken out of service in September, 2012 and the petitioner has proposed to procure the same during 2014-15. The petitioner has not submitted any justification/clarification as to how he asset has become unserviceable and what arrangement was made by it during the interregnum period till replacement sought. In the absence of any justification and documents substantiating the projected additional capital expenditure, we are not inclined to grant relaxation to the prayers of the petitioner. Hence the projected additional capital expenditure is not allowed. In respect of additional capital expenditure for procurement, erection and commissioning of 145 kV outdoor SF6 Gas Circuit Breaker during 2018-19, the same is not allowed as no justification for number of circuit breakers to be replaced has been submitted. In this background, we are not inclined to allow capitalization of the said asset in exercise of Power to Relax. However, the petitioner is granted liberty to approach the Commission with proper justification and relevant documents in respect of these assets (145 kV outdoor SF6 Gas Circuit Breaker and ATR)for the said years at the time of truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

Other Assets

20. In addition to above, the petitioner has claimed additional capitalization under Regulation 14(3)(ii) of the 2014 Tariff Regulations in respect of the following assets:

(₹ *in lakh)*

S.No	Head of Works/ Equipment	Additional Capital Expenditure Claimed	De-capitalization	Net additional capital expenditure claimed
	2014-15			
1	Procurement Erection Commissioning 220 kV/132 kV/33 kV/CT/PT 0.2 Class	25.00	1.44	23.56
	Total	**25.00**	**1.44**	**23.56**
	2015-16			
1	Fire Tender (2 nos.)	40.00	7.18	32.82
2	Portable Fire pump (2 nos.)	16.00	4.50	11.50
3	Spiro meter (1 number)	1.10	-	1.10
4	Audiometry machine (1 number)	1.20	-	1.20
5	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/CT/PT 0.2 Class.	300.00	16.54	283.46
	Total	**358.30**	**28.22**	**330.08**
	2016-17			
1	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/CT/PT 0.2 Class.	175.00	9.21	165.79
	Total	**175.00**	**9.21**	**165.79**
	2017-18	-	-	-
	2018-19			-
	Total Claimed	**558.30**	**38.87**	**519.43**

Procurement/ erection/ commissioning of 220 kV/132 kV/33 kV Current Transformer (CT) /Potential Transformer (PT) of 0.2 Class

21. The petitioner has claimed projected additional capital expenditure of ₹ 25.00 lakh along with de-capitalization of ₹ 1.44 lakh in 2014-15, projected additional capital expenditure of ₹ 300.00 lakh along with de-capitalization of ₹ 16.54 lakh in 2015-16 and projected additional capital expenditure of ₹ 175.00 lakh along with de-capitalization of ₹ 9.21 lakh in 2016-17 under Regulation 14(3)(ii) of the 2014 Tariff Regulations. The petitioner has submitted that the existing CT and PT is in service for more than 40 years and accuracy class > 1.0. The petitioner was directed to submit the supporting documents with respect to its projection under Regulation 14(3)(ii) of the 2014 Tariff

Regulations. In response the petitioner has submitted that the additional capital expenditure has been claimed as per the CEA (Installation and Operation of meters) Regulations, 2006. It is stated under Schedule, Part-I of the CEA Regulations, 2006 that the accuracy class of meters in generation and transmission system shall not be inferior to that of 0.2S Accuracy Class. In view of the above justification, additional capital expenditure claimed is allowed for the years 2014-15, 2015-16 and 2016-17 under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

Fire Tenders and portable fire pump

22. The petitioner has claimed projected additional capital expenditure of ₹ 40.00 lakh along with de-capitalization of ₹ 7.18 lakh and ₹ 16.00 lakh along with de-capitalization of ₹ 4.50 lakh in 2015-16 under Regulation 14(3)(ii) towards procurement of two number of fire tender and two number of portable fire pump respectively. In justification of the same, the petitioner has submitted that this generating station is a hazardous process industry as per Section 2 (cb) of the Factories Act-1948 (amended up to 1987). The petitioner further submitted that fire hazard, in coal fired power generating house, is one of the most critical area, which is to be addressed in time to avoid major losses and also in the past, the petitioner has suffered major losses due to fire in U#4&6 and switch yard of this generating station.

23. We have examined the matter. The petitioner has not submitted any documentary evidence from any Governmental/Statutory agency directing the petitioner for compliance of any Statutory guidelines/provision. As the petitioner has not furnished any justification for capitalization of the said expenditure under the provisions of the statute with documentary evidence, we find no reason to allow the said claim of the petitioner.

However, liberty is granted to the petitioner to claim the additional capital expenditure for the same asset at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations along with the proper justification/ evidence and the same will be considered in accordance with the provisions of the 2014 Tariff Regulations.

Spiro meter and audiometry machine

24. The petitioner has claimed projected additional capital expenditure of ₹ 1.10 lakh and ₹ 1.20 lakh in 2015-16 under Regulation 14(3)(ii) of the 2014 Tariff Regulationstowards one number of spiro meter and one number of audiometry machine respectively. In justification of the same, the petitioner has submitted that this generating station is a hazardous process industry as per Section 2 (cb) of the Factories Act-1948 (amended up to 1987). The petitioner has further submitted that the instrument is essential to set up an Occupational Health Center as per Rule 62-OH of the Jharkhand Factories Rules. The Commission has gone through the submissions of the petitioner and is of the view that the proposed additional capital expenditure towards Spiro meter and Audiometry machine are assets of minor nature and should be met through the O&M expenses and therefore the same has not been considered.

25. Based on the above discussions, the projected additional capital expenditure allowed for the period 2014-17 in respect of the above assets are summarized as under:

(₹ in lakh)

S.N	Head of works/ equipment	Additional capital expenditure allowed	De-capitalization	Net additional capital expenditure allowed
	2014-15			
1	LP Heater #4 Tubeset assembly-(1 nos.)	35.00	1.46	33.54

2	Procurement Erection Commissioning 220 kV/132 kV/33 kV/CT/PT 0.2 Class	25.00	1.44	23.56
3	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	19.00	1.10	17.90
	Total	**79.00**	**4.00**	**75.00**
	2015-16			
1	Vibro Feeders for Coal Handling Plant	20.00	0.57	19.43
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	38.00	2.10	35.90
3	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/CT/PT 0.2 Class.	300.00	16.54	283.46
	Total	**358.00**	**19.21**	**338.79**
	2016-17			
1	Procurement Erection Commissioning 220 kV/ 132 kV/ 33 kV/ CT/ PT 0.2 Class.	175.00	9.21	165.79
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	50.00	2.63	47.37
	Total	**225.00**	**11.84**	**213.16**
	2017-18			
1	Vibro Feeders for Coal Handling Plant	10.00	0.29	9.72
2	Procurement ,erection and commissioning of 145 kV, outdoor SF6 Gas circuit breakers	54.00	2.71	51.29
	Total	**64.00**	**3.00**	**61.00**
	2018-19			
1	Vibro Feeders for Coal Handling Plant	10.00	0.29	9.72
	Total	**10.00**	**0.29**	**9.72**
	Total allowed	**736.00**	**38.33**	**697.67**

Capital cost for the tariff period 2014-19

26. As stated above, the opening capital cost considered is □ 33907.10 lakh as on 1.4.2014. Accordingly, the capital cost considered for the purpose of tariff for the tariff period 2014-19 is as under:

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	33907.06	33982.06	34320.85	34534.01	34595.02
Net Additions Allowed	75.00	338.79	213.16	61.00	9.72
Closing Capital Cost	33982.06	34320.85	34534.01	34595.02	34604.73
Average Capital Cost	33944.56	34151.45	34427.43	34564.52	34599.87

Debt-Equity Ratio

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

> *"(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-equtiy 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 f 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 utilisation 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 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 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 modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

28. Accordingly, the gross normative loan and equity amounting to ₹19003.41 lakh and ₹ 14903.65 lakh respectively, as on 31.3.2014 as considered in order dated 29.7.2016 has been considered as normative loan and equity as on 1.4.2014. The normative debt equity ratio of 70:30 has been considered in the case of additional capital expenditure. This is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations. The opening and closing debt and equity are as under.

Asset	**As on 1.4.2014**		**Net Additional capitalization during 2014-19**		**As on 31.3.2019**	
	Amount (₹ in lakh)	**(%)**	**Amount (₹ in lakh)**	**(%)**	**Amount (₹ in lakh)**	**(%)**
Debt	19003.41	56.04%	488.37	70.00%	19491.78	56.34%
Equity	14903.65	43.95%	209.30	30.00%	15112.95	43.66%
Total	**33907.06**	**100.00%**	**697.67**	**100.00%**	**34604.73**	**100.00%**

Return on Equity

29. 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.*

30. 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."

31. The petitioner has claimed return on equity considering the base rate of 15.50% and effective tax rate (MAT rate) of 20.961%. However, the actual tax rate of 2013-14 is "NIL" as per annual audited accounts of 2013-14. It is also observed from the Annual Accounts of 2014-15 and 2015-16 that tax liability is nil for the petitioner's company as a whole.

32. Therefore, the Commission in view of the actual tax rate of 2013-14 to 2015-16 has considered 'NIL' tax rate for grossing up of the base rate. This is however, subject to truing-up and shall be considered as per the actual effective tax rate applicable for the financial year. Accordingly, Return on Equity has been worked out as under:-

(in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Notional Equity-Opening	14903.65	14926.15	15027.79	15091.74	15110.04
Addition of Equity due to Additional Capitalization	23.70	107.40	67.50	19.20	3.00
Adjustment on account of de-capitalization	1.20	5.76	3.55	0.90	0.09
Normative Equity- Closing	14926.15	15027.79	15091.74	15110.04	15112.95
Average Normative Equity	14914.90	14976.97	15059.76	15100.89	15111.49
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%

Tax rate for the year	0.00%	0.00%	0.00%	0.00%	0.00%
Rate of Return on Equity (Pre Tax)	15.500%	15.500%	15.500%	15.500%	15.500%
Return on Equity	**2311.81**	**2321.43**	**2334.26**	**2340.64**	**2342.28**

Interest on Loan

33. 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-capitalization of such asset.*
>
> *(4) Notwithstanding any moratorium period availed by the generating company orthe 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:*

34. Interest on loan has been worked out as under:

a. The gross normative loan of ₹19003.41 lakh has been considered on 1.4.2014. In addition to this, loan component towards additional capitalization has been considered as per the approved debt equity ratio.

b. Cumulative repayment of loan as on 31.3.2014 has been considered as cumulative repayment as on 1.4.2014.

c. Addition to normative loan on account of additional capital expenditure approved above has been considered on year to year basis.

d. Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19. Proportionate adjustment has been made to the repayments on account of de-capitalizations considered in the additional capital expenditure approved above.

e. In line with the provisions of the regulations, the weighted average rate of interest has been calculated by applying the actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the tariff period 2014-19, if any, for the generating station. In case of loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The calculations for weighted average rate of interest on loan have been enclosed as Annexure-I to this order. The necessary calculation for interest on loan is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Loan for the purpose of tariff in the instant petition	19003.41	19055.91	19293.06	19442.28	19484.98
Cumulative repayment of loan up to previous year	19003.41	19055.91	19245.95	19442.28	19484.98
Net opening loan	0.00	0.00	47.12	0.00	0.00
Addition due to Net Additional Capitalization	52.50	237.16	149.21	42.70	6.80
Repayment of Loan during the period	55.30	203.48	204.62	44.80	7.00
Add: Repayment adjustment on a/c of de-capitalization	2.80	13.44	8.29	2.10	0.20
Less: Repayment on account of adjustment in discharge in liabilities	0.00	0.00	0.00	0.00	0.00
Net Closing Loan	**0.00**	**47.12**	**0.00**	**0.00**	**0.00**
Average Loan	0.00	23.56	23.56	0.00	0.00
Weighted Average Rate of Interest on Loan (%)	10.2433%	10.3499%	10.3547%	11.5453%	11.6025%
Interest on Loan	**-**	**2.44**	**2.44**	**-**	**-**

Depreciation

35. 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 on1.4.2014 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) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

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

36. Regulation 53(2)(iii) of the 2014 Tariff Regulations provides as under:

*"**53. Special Provisions relating to Damodar Valley Corporation.** (1) Subject to clause (2), these regulations shall apply to determination of tariff of the projects owned by Damodar Valley Corporation (DVC).*

(2) The following special provisions shall apply for determination of tariff of the projects owned by DVC:
(i)….
(ii)….
(iii) Depreciation: The depreciation rate stipulated by the Comptroller and Auditor General of India in terms of section 40 of the Damodar Valley Corporation Act, 1948 shall be applied for computation of depreciation of projects of DVC.

37. The rate of depreciation has been arrived at by considering the weighted average of depreciation computed on the gross value of asset as on 31.3.2009 and at the rates approved by C&AG which works out to 7.8706%. Further, the proportionate adjustment has been made to the cumulative depreciation corresponding to de-capitalization during the tariff period 2014-19 for the purpose of tariff. The necessary calculations in support of depreciation are as under:-

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	33907.06	33982.06	34320.85	34534.01	34595.02
Net Additional Capitalization	75.00	338.79	213.16	61.00	9.72
Closing Capital Cost	33982.06	34320.85	34534.01	34595.02	34604.73
Average capital cost	33944.56	34151.45	34427.43	34564.52	34599.87
Value of freehold land	23.33	23.33	23.33	23.33	23.33
Depreciable value	30529.11	30715.31	30963.69	31087.07	31118.89
Balance depreciable value	124.47	203.48	259.03	126.07	32.08
Depreciation	**124.47**	**203.48**	**259.03**	**126.07**	**32.08**
Cumulative depreciation at the end of the period (before adjustment)	30529.11	30715.31	30963.69	31087.07	31118.89
Less: Cumulative depreciation adjustment on account of de-capitalization	17.28	10.65	2.69	0.25	
Cumulative depreciation after adjustment (at the end of the period)	30511.83	30704.66	30961.00	31086.81	31118.89

Compensation Allowance

38. Regulation 17 of the 2014 Tariff Regulations provides as under:

> ***"17. Compensation Allowance:*** *(1) In case of coal-based or lignite-fired thermal generating station or a unit thereof, a separate compensation allowance shall be admissible to meet expenses on new assets of capital nature which are not admissible under Regulation 14 of these regulations, and in such an event, revision of the capital cost shall not be allowed on account of compensation allowance but the compensation allowance shall be allowed to be recovered separately*
>
> *(2) The Compensation Allowance shall be allowed in the following manner from the year following the year of completion of 10, 15, or 20 years of useful life:"*

Years of operation	Compensation Allowance (lakh/MW/year)
0-10	Nil
11-15	0.20
16-20	0.50
21-25	1.00

39. The petitioner has claimed compensation allowance as under:

(□ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
390.00	390.00	390.00	390.00	390.00

40. As all the three units of the generating station have completed more than 25 years of useful life and hence the generating station is not entitled for any Compensation Allowance, in terms of Regulation 17 of the 2014 Tariff Regulations. Hence, Compensation Allowance has not been allowed.

Operation &Maintenance Expenses

41. Regulation 29 (1) (c) of the 2014 Tariff Regulations provides the year-wise O&M expense norms claimed for the generating station of the petitioner as under:

(□ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
13993.20	14874.60	15810.60	16805.10	17862.00

42. In addition to above, the petitioner has claimed additional O&M expenses towards Ash evacuation, Mega insurance, CISF security and Share of Subsidiary activity.

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Ash Evacuation	1336.52	1470.17	1617.19	1778.90	1956.79
Mega Insurance	48.51	48.51	53.36	62.79	69.07
CISF Security	1065.47	1133.12	1205.08	1281.60	1362.98
Share of Subsidiary activity	200.75	235.53	284.48	319.61	337.44
Total	**2651.24**	**2887.33**	**3160.10**	**3442.91**	**3726.29**

43. The petitioner has claimed additional O&M towards ash evacuation, CISF Security, Mega insurance and share of subsidiary activity for the tariff period 2014-19 and has submitted that it is necessary expenditure and required for successful operation of the plant.

44. We have considered the submissions of the petitioner. In the statement of reasons in support of the 2014 Tariff Regulations, it has been observed by the Commission as under:

> *"…29.39 Some of the generating stations have suggested that site specific factors should be taken into account and additional O&M expenses should be allowed. The Commission is of the view that the site specific norms in case of thermal generating stations may not serve much purpose as there is a set of advantages and disadvantages associated with every site, which average out, and the proposed norms are also based on multiple stations with wide geographical spread and therefore, such aspects are already factored in the norms…"*

45. In line with the above observations and in accordance with the 2014 Traiff Regulations, the additional O&M expenses claimed by the petitioner under the above head have not been allowed.

Water Charges

46. Regulation 29(2) of the 2014 Tariff Regulations provide as under:

> "*29.(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:*
>
> *Provided that water charges shall be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details regarding the same shall be furnished along with the petition:*
> *Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalization or consumption of stores and spares and renovation and modernization"*

47. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check of the details furnished by the petitioner. The petitioner has submitted that at present water charges have not been claimed for the generating station.

However, it has sought liberty to approach the Commission as and when the same is billed by the Authority and paid by the petitioner. In view of the above submission, we grant liberty to the petitioner to claim water charges at the time of truing up and the same will be considered in accordance with law.

Capital spares

48. The petitioner has claimed capital spares on projection basis under Regulation 29(2) of the 2014 Tariff Regulations. However, the petitioner has also submitted that the actual year-wise capital spares along with adequate justification will be submitted at the time of truing up. In view of this, the claim of the petitioner has not been considered in this order. The claim of the petitioner, if any, at the time of truing-up, shall be considered on merits, after prudence check in terms of the provisions of the 2014 Tariff Regulations.

Operational Norms

49. The operational norms in respect of the generating station claimed by the petitioner are as under:

Target Availability (%)	75.00
Heat Rate (kCal/kWh)	3100.00
Auxiliary Energy Consumption (%)	9.50
Specific Oil Consumption (ml/kWh)	1.50

50. The operational norms claimed by the petitioner are discussed as under:

Normative Annual Plant Availability Factor (NAPAF)

51. Regulation 36 (A) (c) of the 2014 Tariff Regulations provides as under:

"(c) Following Thermal Generating Stations of DVC:

Bokaro TPS	*75%*
Chandrapura TPS	*75%*
Durgapur TPS	*74%*

"

52. We have considered Target Availability of 75% during 2014-19 same as claimed by the petitioner in accordance with above regulation.

Heat Rate (kCal/kWh)

53. Regulation 36(C)(a)(iii) of the 2014 Tariff Regulations provides the Gross Station Heat Rate of 3100 kCal/kWh for this generating station. The petitioner has considered heat rate of 3100 kCal/kWh. Hence, the heat rate considered by the petitioner as per norms is in order and is allowed.

Auxiliary Energy Consumption

54. Regulation 36(E)(b) of the 2014 Tariff Regulations provides the Auxiliary Energy Consumption of 9.50% for this generating station. The petitioner has considered Auxiliary Energy Consumption of 9.50%. Hence, the Auxiliary Energy Consumption considered by the petitioner as per norms is in order and is allowed.

Specific fuel Oil Consumption

55. Regulation 36(D)(c) of the 2014 Tariff Regulations provides secondary fuel oil consumption of 1.50 ml/kWh for coal-based generating stations of the petitioner. Accordingly, the secondary fuel oil consumption considered by the petitioner as per norms is in order and is allowed.

Interest on working capital

56. Sub-section (1) 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*
>
> *(a) Coal-based/lignite-fired thermal generating stations*
>
> *(i) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;*
>
> *(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;*
>
> *(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;*
>
> *(iv)Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;*
>
> *(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and*
>
> *(vi) Operation and maintenance expenses for one month.*

Fuel Components and Energy Charges in working capital

57. The petitioner has claimed cost for fuel components in working capital based on "as received" GCV of coal procured for the preceding three months of January, 2014, February, 2014 and March, 2014 and secondary fuel oil for the preceding three months of January, 2014, February, 2014 and March, 2014, as under:

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal/Lignite- 2 months	10113.89	10113.89	10113.89	10113.89	10113.89
Cost of Main Secondary Fuel Oil- 2 months	363.20	364.19	363.20	363.20	363.20
Total	**10477.09**	**10478.08**	**10477.09**	**10477.09**	**10477.09**

58. Accordingly, the fuel components in the working capital has been computed based on the price and GCV of coal & secondary fuel oil procured and burnt for the preceding three months of January, 2014, February, 2014 and March, 2014 and has been allowed as under:

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock– 30 days	5127.18	5141.23	5127.18	5127.18	5127.18
Cost of Coal for generation– 30 days	5127.18	5141.23	5127.18	5127.18	5127.18
Cost of secondary fuel oil – two months	363.20	364.19	363.20	363.20	363.20

Maintenance spares

59. The petitioner has claimed maintenance spares in working capital as under:

(□in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2798.64	2974.92	3162.12	3361.02	3572.40

60. The petitioner has claimed maintenance spares as per the 2014 Tariff Regulations and the same has been considered.

Receivables

61. Receivables equivalent to two months of capacity charge and energy charge for sale of electricity has been calculated on normative plant availability factor. Accordingly,

receivables have been worked out on the basis of two months of fixed and energy charges (based on primary fuel only) as shown below:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges -2 months	10617.56	10646.65	10617.56	10617.56	10617.56
Fixed Charges - 2 months	3381.32	3554.22	3730.24	3884.29	4055.64
Total	**13998.88**	**14200.87**	**14347.80**	**14501.85**	**14673.20**

O&M expenses for 1 month

62. O & M expenses for 1 month as claimed by the petitioner for the purpose of working capital are allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1166.10	1239.55	1317.55	1400.43	1488.50

Rate of interest on working capital

63. 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."*

64. In terms of the above regulations, SBI PLR of 13.50% (Bank rate 10.00% + 350 bps) has been considered for the purpose of calculating interest on working capital. Interest on working capital has been computed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal for stock for 30 days	5127.18	5141.23	5127.18	5127.18	5127.18
Cost of coal for Generation for 30 days	5127.18	5141.23	5127.18	5127.18	5127.18
Oil stock -2 months	363.20	364.19	363.20	363.20	363.20
O & M expenses	1166.10	1239.55	1317.55	1400.43	1488.50

	2014-15	2015-16	2016-17	2017-18	2018-19
Spares	2798.64	2974.92	3162.12	3361.02	3572.40
Receivables	13998.88	14200.87	14347.80	14501.85	14673.20
Total Working Capital	28581.18	29061.99	29445.02	29880.85	30351.66
Rate of Interest	13.500%	13.500%	13.500%	13.500%	13.500%
Total Interest on Working capital	**3858.46**	**3923.37**	**3975.08**	**4033.91**	**4097.47**

Other Elements of tariff

65. In addition, the petitioner has claimed expenditure towards Pension & Gratuity contribution and Cost of Common Offices. We now discuss and decide these elements as detailed below:

Pension & Gratuity Contribution

66. The petitioner has claimed pension and gratuity contribution for the tariff period 2014-19 and has submitted that it has considered the actuarial valuation as on 31.3.2014, for liability towards pension and gratuity fund and projected P&G liability for the tariff period 2014-19. It is observed that the liability claimed by the petitioner pertains to the tariff period 2009-14 and does not pertain to the tariff period 2014-19. In this regard it is observed that the Commission in its order dated 29.7.2016 in Petition No. 470/GT/2014, has disallowed the claim of the petitioner and has observed as under:

"87. As stated, the Commission in order dated 7.8.2013 in Petition No. 275/GT/2012 had allowed the recovery of 40% of the difference in liability as per Actuarial valuation 31.3.2009 and 31.3.2006 in five equal installments. The Commission in the said order had allocated the same on its generating stations except Mejia Unit 5 & 6. The Commission has revised the allocation and has also allocated share of P&G liability to Mejia Unit 5 and 6 on the basis of capital cost of □ 205946.66 lakh admitted by it as on 31.3.2009. It is observed that the O&M expenses norms specified by the Commission under the 2009 Tariff Regulations applicable for the period 2009-14 had taken into consideration the P&G liability as part of O&M expenses. The statement of reason of the 2009 Tariff Regulations, at para 20.3 clearly states that O&M cost for purpose of tariff covers expenditure incurred on the employees including gratuity, CPF, medical,

education allowances etc. The expenses on account of CPF considered in Public Sector Undertakings take care of pension liability applicable in Government Undertaking.

88. In this background, the additional claim of the petitioner towards P&G liability for the period 2009-14 based on Actuarial valuation cannot be allowed……"

67. We have already taken a view in order dated 29.7.2016 in Petition No. 470/GT/2014 that these expenses may be met through the normative O&M Expenses allowed to the generating station. In view of this the share of pension and gratuity is not allowed.

68. During the hearing, the learned counsel for the petitioner has submitted that the Commission may consider allowing the contribution to P&G fund, keeping in view the addition/deletion of employees and the differential amount on account of pay revision of employees thereby impacting the pension fund. The learned counsel of the petitioner further submitted that out of pension and gratuity fund, the pension fund has not been considered in the normative O&M expenses admissible for all generating stations of the petitioner under the 2014 Tariff Regulations. We have examined the matter. Considering the fact that the issue of contribution to P&G fund is common to all the generating stations/T&D systems of the petitioner and since full details are not available on records, we do not consider the prayer of the petitioner at this stage.

Common Office Expenditure

69. The petitioner has submitted that the expenditure pertaining to common office expenditure such as Direction Office, Central Office, Other Offices, Subsidiary activities, IT centre and R&D caters services to all generating stations as well as composite

transmission and distribution systems. It has also submitted that the total cost of common assets computed is based on capital cost as on 31.3.2014 as per Audited Accounts for the year 2013-14 which have been apportioned based on the opening cost of all generation and T&D system as on 1.4.2014 and apportionment thereof to each of the productive generating station in proportion to their installed capacities in MW as per directive of the Commission vide its order dated 7.8.2013 in Petition No. 275/GT/2013. Accordingly, the additional capital expenditure claimed by the petitioner towards various offices is as under.

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Direction office	-	-	-	-	-
Subsidiary activities	-	-	-	-	-
Other offices	-	-	-	-	-
R&D	-	-	-	-	-
IT	698.90	685.00	4508.00	4508.00	300.00
Central Office	-	-	-	-	-
Total expenditure	**698.90**	**685.00**	**4508.00**	**4508.00**	**300.00**

70. The petitioner has computed Return on Equity, Interest on Loan and Depreciation on the Common Assets for the tariff period 2014-19 based on the opening capital cost as on 1.4.2014 and projected additional capitalization during the tariff period 2014-19 towards different offices and has apportioned them to each generating stations and T&D system in proportion to the capital cost approved as on 31.3.2014. Further, the petitioner has allocated the cost of common offices among generating stations on the basis of installed capacity. Accordingly, the annual fixed charges claimed towards Common Assets are as under:-

(₹ inlakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Direction office	181.64	83.17	60.36	60.36	60.36
Subsidiary activities	169.44	89.54	58.91	58.91	58.91
Other offices	126.07	122.24	122.24	105.32	48.81

R&D	280.10	270.44	260.17	253.34	241.98
IT	100.99	219.39	667.10	1497.65	1893.35
Central Office	554.87	532.74	509.91	487.66	487.66
Total expenditure	**1413.11**	**1317.51**	**1678.69**	**2463.24**	**2791.07**

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Generating Stations claimed	1327.15	1237.37	1576.58	2313.41	2621.29
T&D claimed	85.96	80.14	102.11	149.83	169.78
Total	**1413.11**	**1317.51**	**1678.69**	**2463.24**	**2791.07**

(□ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Chandrapura TPS Unit-I to III	69.90	64.89	61.15	61.09	60.47

71. In response to the directions of the Commission, it is observed that the petitioner has not submitted any details with regard to additional capitalization claimed under IT offices. In view of this, the additional capitalization claimed under IT office is not allowed. However, the petitioner is granted liberty to submit detailed justification on the said claim at the time of revision of tariff based on truing-up exercise.

72. It is noticed that the claim of the petitioner for common office expenditure is in line with the Commission's order dated 6.8.2009 in Petition No. 66/2005 and order dated 8.5.2013 in Petition No. 272/2010. Accordingly, the annual fixed charges for Common offices have been worked out by considering as the admitted opening capital cost as on 1.4.2014 in order dated 29.7.2016 in Petition No. 470/GT/2014. The annual fixed charges of Common offices as worked out have been apportioned to the generating stations / T&D systems as considered as on 31.3.2014.

73. Accordingly, the fixed charges have been computed as per the admitted capital cost as on 1.4.2014 (as approved in order dated 29.7.2016 in 470/GT/2014)and has been allocated to various generating stations as under.

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	438.37	390.47	331.22	331.22	331.22
Interest on loan	130.32	105.00	93.73	92.63	81.03
Return on Equity	573.79	573.79	573.79	573.79	573.79
Total	**1142.48**	**1069.27**	**998.75**	**997.65**	**986.05**

(₹ in lakh)

	Capital cost as on 1.4.2014	2014-15	2015-16	2016-17	2017-18	2018-19
Entire generating station	574165.23	989.45	926.04	864.97	864.01	853.97
T&D	88805.81	153.04	143.23	133.78	133.64	132.08
Total	**662971.04**	**1142.48**	**1069.27**	**998.75**	**997.65**	**986.05**

(₹ in lakh)

	Capacity (MW)	2014-15	2015-16	2016-17	2017-18	2018-19
Bokaro TPS	630	99.64	91.77	85.72	85.62	84.63
Chandrapura TPS	**390**	**61.68**	**56.81**	**53.06**	**53.01**	**52.39**
Durgapur TPS	350	55.36	50.98	47.62	47.57	47.02
Mejia TPS #1 to 3	630	99.64	91.77	85.72	85.62	84.63
Mejia TPS #4	210	33.21	30.59	28.57	28.54	28.21
Mejia TPS #5 & 6	500	79.08	72.83	68.03	67.96	67.17
Maithon HS	63.2	10.00	9.21	8.60	8.59	8.49
Panchet HS	80	12.65	11.65	10.88	10.87	10.75
Tilaiya HS	4	0.63	0.58	0.54	0.54	0.54
Total	**2857.2**	**451.91**	**416.20**	**388.75**	**388.32**	**383.81**
Chandrapura TPS #7 & 8	500	79.08	72.83	68.03	67.96	67.17
Mejia TPS 7 & 8	1000	158.16	145.67	136.06	135.91	134.33
Durgapur Steel TPS # 1 & 2	1000	158.16	145.67	136.06	135.91	134.33
Koderma TPS	898.63	142.13	145.67	136.06	135.91	134.33
Total	**3398.63**	**537.54**	**509.84**	**476.21**	**475.69**	**470.16**
Grand Total	**6255.83**	**989.45**	**926.04**	**864.97**	**864.01**	**853.97**

74. Accordingly, annual fixed charges approved for the generating station for the tariff 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
Depreciation	124.47	203.48	259.03	126.07	32.08
Interest on Loan	0.00	2.44	2.44	0.00	0.00
Return on Equity	2311.81	2321.43	2334.26	2340.64	2342.28
Interest on Working Capital	3858.46	3923.37	3975.08	4033.91	4097.47
O&M Expenses	13993.20	14874.60	15810.60	16805.10	17862.00
Sub-Total	**20287.94**	**21325.32**	**22381.41**	**23305.72**	**24333.83**
Share of Common Office Expenses	61.68	56.81	53.06	53.01	52.39
Additional O&M on account of Ash Evacuation, Mega Insurance, CISF Security and Share of subsidiary activities	-	-	-	-	-
Share of Pension & Gratuity Contribution	-	-	-	-	-
Sub-Total	**61.68**	**56.81**	**53.06**	**53.01**	**52.39**
Total Annual Fixed Charges	**20349.62**	**21382.13**	**22434.48**	**23358.72**	**24386.22**

Energy Charge Rate (ECR)

75. Clause (6) sub-clause (a) of Regulation 30 of the 2014 Tariff Regulations provides for computation and payment of Capacity Charge and Energy Charge for thermal generating stations:

> *"6. Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formulae*:
> *(a) For coal based and lignite fired stations*
> *ECR = {(GHR – SFC x CVSF) x LPPF / CVPF+SFC x LPSFi + LC x LPL} x 100 / (100 – AUX)*
> *Where,*
> *AUX = Normative auxiliary energy consumption in percentage.*
> *CVPF = (a) Weighted Average Gross calorific value of coal as received, in kCal per kg, for coal based stations.*
> *(b)….*
> *(c)In case of blending of fuel from different sources, the weightedaverage Gross calorific value of primary fuel shall be arrived inproportion to blending ratio.*
> *CVSF = Calorific value of secondary fuel, in kCal per ml.*
> *ECR = Energy charge rate, in Rupees per kWh sent out.*

GHR = Gross station heat rate, in kCal per kWh.
LC = Normative limestone consumption in kg per kWh.
LPL = Weighted average landed price of limestone in Rupees per kg.
LPPF = Weighted average landed price of primary fuel, in Rupees per kg,per litre or per standard cubic metre, as applicable, during the month. (In case of blending of fuel from different sources, the weighted average landed price of primary fuel shall be arrived in proportion to blending ratio)
SFC = Normative Specific fuel oil consumption, in ml per kWh.
LPSFi=Weighted Average Landed Price of Secondary Fuel in Rs./ml during the month."

76. The petitioner has claimed an Energy Charge Rate (ECR) of 274.72 paise/kWh. Accordingly, the base energy charge of 274.72 Paise/kWh determined based on the price and GCV of fuel for the preceding three months and calculated in accordance with the 2014 Tariff Regulations is allowed as under:

Description	Unit	2014-19
Capacity	MW	3x130 MW
Gross Station Heat Rate	kCal/kWh	3100.00
Auxiliary Energy Consumption	%	9.50%
Specific Fuel Oil Consumption	ml/kWh	1.50
Weighted Average GCV of Oil	Kcal/L	9320.06
Weighted Average GCV of Coal	kCal/kg	3357.87
Weighted Average Price of Coal	□ /MT	2612.73
Weighted Average Price of Oil	□ /ml	0.0567
Rate of Energy Charge ex-bus per kWh	Paise/kWh	274.72

Application Fee and Publication Expenses

77. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the tariff period 2014-19. The petitioner has deposited the filing fees for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No.

232/GT/2014, we direct that the petitioner shall be entitled to recover pro rata, the filing fees and the expenses incurred on publication of notices for the period 2014-15 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2015-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

78. The annual fixed charges determined as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

79. Petition No. 349/GT/2014 is disposed of in terms of the above.

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

Annexure-I

DETAILS OF LOAN BASED ON ACTUAL LOAN PORTFOLIO (2014-19)

(₹ in lakh)

Particular	Interest Rate					Loan deployed as on 1.4.2014	Additions during the tariff period	Total
	2014-15	2015-16	2016-17	2017-18	2018-19			
Loan- 1 DVC BONDS	8.95	8.95	8.95	8.95	8.95	30000.00	0.00	30000.00
Loan-2 PFC	6.91	6.91	6.91	6.91	0.00	8451.00	0.00	8451.00
Loan-3 GOI RVP	9.00	9.00	9.00	9.00	9.00	500.00	0.00	500.00
Loan 4 US Exim $Loan$	2.00	2.00	2.00	2.00	2.00	6177.00	0.00	6177.00
Loan 5-DVC Bonds- For T&D	8.95	8.95	8.95	8.95	8.95	34000.00	0.00	34000.00
Loan - 6 REC Loan (For T&D)	11.68	11.66	11.66	11.66	11.66	63499.00	15500.00	78999.00
Total						**142627.00**	**15500.00**	**158127.00**

WEIGHTED AVERAGE RATE OF INTEREST ON LOAN DURING 2009-14 TARIFF PERIOD

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	142643.00	158143.00	158143.00	158143.00	158143.00
Cumulative Repayments of Loans upto Previous Year	12659.00	13119.00	20163.00	91207.00	98238.00
Net Loans Opening	129984.00	145024.00	137981.00	66936.00	59905.00
Add: Drawl(s) during the year	15500.00	0.00	0.00	0.00	0.00
Increase/Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
Increase/Decrease due to ACE	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of Loan during the year	460.00	7043.00	71044.00	7031.00	7002.00
Net Closing Loan	145024.00	137981.00	66937.00	59905.00	52903.00
Average Net Loan	135059.00	142443.00	129613.00	64355.00	57324.00
Interest on Loan	13834.49	14742.66	13421.00	7430.00	6651.00
Rate of Interest on Loan (%)	10.2433%	10.3499%	10.3547%	11.5453%	11.6025%