CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 323/GT/2014

Coram:

Shri Gireesh. B. Pradhan, Chairperson
Shri A.K.Singhal, Member
Shri A.S. Bakshi, Member
Dr. M. K. Iyer, Member

Date of Order : 24.02.2017

In the matter of

Determination of tariff for Korba Super Thermal Power Station, Stage-I & II (2100 MW) for the period from 1.4.2014 to 31.3.2019.

And in the matter of

NTPC Ltd
NTPC Bhawan,
Core-7, SCOPE Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110003) **.....Petitioner**

Vs

1. Madhya Pradesh Power Management Company Ltd.
   Shakti Bhawan, Vidyut nagar
   Jabalpur - 482 008

2. Maharashtra State Electricity Distribution Co. Ltd.
   Prakashgad, Bandra (East),
   Mumbai - 400 051

3. Gujarat Urja Vikas Nigam Ltd.
   Vidyut Bhawan, Race Course
   Vadodara - 390 007

4. Chattisgarh State Power Distribution Co. Ltd.,
   P.O. Sundar Nagar,
   Danganiya, Raipur- 492 013

5. Govt. of Goa
   Electricity Department, Vidyut Bhawan,
   Panaji, Goa - 403 001

6. Electricity Department
   Administration of Daman & Diu
   Daman - 396 210

7. Electricity Department
   Administration of Dadra & Nagar Haveli
   Silvassa **...Respondents**

Parties present:

For Petitioner: Shri Bhupinder Kumar, NTPC
Shri Rajeev Chaudhary, NTPC
Shri Ajay Dua, NTPC
Shri Nishant Gupta, NTPC

For Respondents: Shri Rishabh Singh, Advocate, MPPMCL

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Korba Super Thermal Power Station, Stage-I & II (2100 MW) (hereinafter referred to as "the generating station") for the 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 generating station with a capacity of 2100 MW comprises of three units of 200 MW each and three units of 500 MW each. The dates of commercial operation (COD) of the different units of the generating station are as under:

Unit	Capacity(MW)	COD
Unit-I	200	1.8.1983
Unit-II	200	1.1.1984
Unit-III	200	1.6.1984
Unit-IV	500	1.3.1988
Unit-V	500	1.4.1989
Unit-VI	500	1.6.1990

3. Petition No. 264/2009 was filed by the petitioner for approval of tariff of the generating station for the period 2009-14 and the Commission by its order dated 12.10.2012 had approved the annual fixed charges of the generating station based on the capital cost of ₹175653.11 lakh, after removal of un-discharged liabilities of ₹553.44 lakh as on 1.4.2009. Thereafter, in Petition No. 230/GT/2013, the Commission vide order dated 5.11.2014 had revised the annual fixed charges of the generating station based on the actual additional capital expenditure incurred for the years 2009-10, 2010-11, 2011-12, 2012-13 and projected additional capital expenditure for the year 2013-14, as per the latest estimates and status of works. Aggrieved by the said order dated 5.11.2014, the petitioner had filed Review Petition (3/RP/2015) on various issues and the Commission vide order dated 18.3.2015 had allowed the said review petition on the issue of arithmetical error in reduction of the cost of de-capitalised spares and de-capitalised MBOAs which were not part of the capital cost from the capital cost.

4. Based on the this, the Commission vide order dated 25.1.2017 in Petition No. 345/GT/2014 had revised the tariff of the generating station for the period 2009-14 after truing up of the actual additional capital expenditure in terms of Regulation 6 (1) of the 2009 Tariff Regulations. In the said order, the capital cost of ₹178071.97 lakh as on 31.3.2014 on cash basis was considered after deduction of un-discharged liabilities of ₹1458.13 lakh. Accordingly, the annual fixed charges approved by the order dated 25.1.2017 was as under:

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	2127.91	2226.80	2449.27	3275.61	1400.05
Interest on Loan	586.68	467.44	359.20	143.65	33.56
Return on Equity	20223.94	20005.26	19806.32	19847.32	20386.95
Interest on Working Capital	5383.54	5497.84	5612.27	5733.96	5882.17
O&M Expenses	30420.00	32154.00	33999.00	35946.00	38004.00
Secondary fuel oil cost	6085.34	6085.34	6102.01	6085.34	6085.34
Compensation Allowance	955.00	825.00	825.00	975.00	650.00
Special Allowance	2000.00	3171.60	3353.02	3544.81	6870.55
Total	**67782.40**	**70433.29**	**72506.09**	**75551.69**	**79312.63**

5. Before we proceed to determine the tariff of the generating station for the period of 2014-19, we intend to rectify an inadvertent clerical error in the undischarged liabilities table in para 55, interest on loan table in para 61 vide order dated 25.1.2017 in Petition No. 345/GT/2014.

6. Regulation 103(A) of the Central Electricity Regulatory Commission (Conduct of Business) Regulation, 1999, as amended from time to time (Conduct of Business Regulation) provides as under: -

> *"Clerical or arithmetical mistakes in the orders or errors arising therein from any accidental slip or omission may at any time be corrected by the Commission either of its own motion or on the application of any of the parties."*

7. The above provision enables the Commission to correct any accidental omission or error in an order at any time on its own motion. Hence, we consider it appropriate to correct the inadvertent clerical errors in the undischarged liabilities table in para 55 and interest on loan table in para 61 of this generating station which was allowed vide order dated 25.1.2017. Accordingly, in exercise of our power under Regulation 103(A) of Conduct of Business Regulations, para 55 is revised as under:-

(₹ in lakh)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Un-discharged liabilities as on 1.4.2009 (corresponding to allowed assets)- A	**1472.51**				
Discharges during the period out of liabilities as on 1.4.2009 (corresponding to allowed assets)- B	151.01	57.76	1.74	14.65	34.13
Reversals during the period out of liabilities as on 1.4.2009 (corresponding to allowed assets)- C	69.95	33.25	0.00	13.44	32.26
Addition during the period 2009-14 (corresponding to allowed assets)- D	18.53	12.10	665.88	123.18	137.04
Discharges during the period out of liabilities added during 2009-14 (corresponding to allowed assets)- E	0.00	10.55	5.18	373.12	107.93
Reversal of liabilities out of liabilities added during 2009-14 (corresponding to allowed assets)- F	0.00	0.00	0.00	2.75	63.39
Discharges of liabilities for the period (B+E)	**151.01**	**68.31**	**6.92**	**387.76**	**142.06**

8. Interest on loan allowed to the generating station in para 61 in order dated 25.1.2017 is revised as under:-

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Gross opening loan	88653.72	88880.58	88949.98	89497.49	89783.86
Cumulative repayment of loan upto previous year	79759.88	81744.22	83894.15	86052.95	89223.11
Net Loan Opening	8893.84	7136.36	5055.83	3444.54	560.75
Addition due to additional capital expenditure	226.86	69.40	547.51	286.37	1206.40
Repayment of loan during the year	2127.91	2226.80	2449.27	3275.61	1400.05
Less: Repayment adjustment on account of de-capitalization	235.81	114.86	291.19	117.18	157.88
Add: Repayment adjustment on account of discharges corresponding to un-discharged liabilities deducted as on 1.4.2009	92.24	37.99	0.72	11.72	27.72
Net Repayment	1984.34	2149.93	2158.80	3170.16	1269.89
Net Loan Closing	7136.36	5055.83	3444.54	560.75	497.26
Average Loan	8015.10	6096.10	4250.18	2002.64	529.00
Weighted Average Rate of Interest of loan	7.3197	7.6679	8.4514	7.1732	6.3436
Interest on Loan	**586.68**	**467.44**	**359.20**	**143.65**	**33.56**

9. It is observed that there is an arithmetic error in compensation allowance for the year 2011-12 and the same is corrected herewith. Accordingly, the Annual Fixed Charges approved in para 73 in order dated 25.1.2017 in Petition No. 345/GT/2014 are revised as under:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	2127.91	2226.80	2449.27	3275.61	1400.05
Interest on Loan	586.68	467.44	359.20	143.65	33.56
Return on Equity	20223.94	20005.26	19806.32	19847.32	20386.95
Interest on Working Capital	5383.54	5497.84	5612.27	5733.96	5882.17
O&M Expenses	30420.00	32154.00	33999.00	35946.00	38004.00
Secondary fuel oil cost	6085.34	6085.34	6102.01	6085.34	6085.34
Compensation Allowance	955.00	825.00	975.00	975.00	650.00
Special Allowance	2000.00	3171.60	3353.02	3544.81	6870.55
Total	**67782.40**	**70433.29**	**72659.21**	**75551.69**	**79312.63**

10. All other conditions in order dated 25.1.2017 shall remain unchanged.

Determination of tariff for the period 2014-19

11. The petitioner vide affidavit dated 19.8.2014 has sought the approval of tariff 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 period 2014-19 are as under:

Capital Cost

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	183337.29	195229.29	207329.29	226113.29	227713.29
Add: Additional capital expenditure	11892.00	12100.00	18812.00	1600.00	72514.00
Closing Capital Cost	195229.29	207329.29	226113.29	227713.29	300227.29
Average Capital Cost	189283.29	201279.29	216721.29	226913.29	263970.29

Annual Fixed Charges

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	6869.39	10796.40	13897.80	9178.40	33351.30
Interest on Loan	64.83	54.11	0.00	0.00	496.45
Return on Equity	18431.34	19164.72	20108.78	20731.87	22997.37
Interest on Working Capital	8887.31	9187.20	9452.96	9559.72	10393.37
O&M Expenses	45370.53	48231.97	51271.76	54506.70	57944.70
Compensation Allowance	500.00	500.00	0.00	0.00	0.00
Special allowance	11056.83	11758.94	16747.00	17810.43	18941.40
Total	**91180.24**	**99693.34**	**111478.30**	**111787.12**	**144124.58**

12. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies on the respondents. The respondent, MPPMCL has submitted replies in the matter. The petitioner has filed its rejoinder to the same. We now proceed to examine the claim of the petitioner based on the submissions of the parties and the documents available on record, as discussed in the subsequent paragraphs.

Capital Cost as on 1.4.2014

13. 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 excluding liability, 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 modernisation as admitted by this Commission in accordance with Regulation 15."

14. The petitioner vide affidavit dated 19.8.2014 has claimed the annual fixed charges based on the opening capital cost of ₹183337.29 lakh as on 1.4.2014 as against ₹178071.97 lakh on 31.3.2014 admitted by the Commission vide order dated 25.1.2017 in Petition No. 345/GT/2014. The un-discharged liabilities of ₹1458.13 lakh correspond to the approved capital cost of ₹178071.97 lakh (on cash basis) as on 31.3.2014. Accordingly, the opening capital cost considered as on 1.4.2014, after removal of un-discharged liabilities works out to ₹178071.97 lakh (on cash basis).

Actual/Projected Additional Capital Expenditure

15. 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."

16. Regulation 15 of 2014 Tariff Regulations provides as under:

"15. Renovation and Modernisation: (1) The generating company or the transmission licensee, as the case may be, for meeting the expenditure on renovation and modernization (R&M) for the purpose of extension of life beyond the originally recognised useful life for the purpose of tariff of the generating station or a unit thereof or the transmission system or an element thereof, shall make an application before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, and any other information considered to be relevant by the generating company or the transmission licensee."

17. Regulation 16 of 2014 Tariff Regulations provides for special allowance coal based/ lignite for thermal generating station as under:

"16. Special Allowance for Coal-based/Lignite fired Thermal Generating station:
(1) In case of coal-based/lignite fired thermal generating station, the generating company, instead of availing R&M may opt to avail a "special allowance" in accordance with the norms specified in this regulation, as compensation for meeting the requirement of expenses including renovation and modernisation beyond the useful life of the generating station or a unit thereof, and in such an event, revision of the capital cost shall not be

allowed and the applicable operational norms shall not be relaxed but the special allowance shall be included in the annual fixed cost:

Provided that such option shall not be available for a generating station or unit for which renovation and modernization has been undertaken and the expenditure has been admitted by the Commission before commencement of these regulations, or for a generating station or unit which is in a depleted condition or operating under relaxed operational and performance norms.

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(3) In the event of granting special allowance by the Commission, the expenditure incurred or utilized from special allowance shall be maintained separately by the generating station and details of same shall be made available to the Commission as and when directed to furnish details of such expenditure."

18. The break-up of the projected additional capital expenditure claimed [as per Form 9(a)] during the period 2014-19 is as under:

(₹ in lakh)

S.N	Head of Work /Equipment	Regulation	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	**Ash Dyke related works**							
i	Buttressing of lagoon-I Dhanras ash Dyke	14 (3)(iv)	1192.00	-	-	-	-	1192.00
ii	5th & 6th raising of Lagoon-I Dhanras Ash Dyke		-	-	2000.00	1600.00	-	3600.00
iii	New Ash Dyke		-	-	12500.00	-	72100.00	84600.00
2	ESP Modification works	14(3)(ii)	10700.00	12100.00	4000.00	-	-	26800.00
3	Replacement of Halon system of Stage – II		-	-	340.00	-	450.00	790.00
	Additional capital expenditure		**11892.00**	**12100.00**	**18840.00**	**1600.00**	**72550.00**	**116982.00**
4	Decapitalisation for Halon system		-	-	(-)28.00	-	(-)36.00	(-)64.00
	Total Additional capital expenditure		**11892.00**	**12100.00**	**18812.00**	**1600.00**	**72514.00**	**116918.00**

19. The projected additional capital expenditure claimed by the petitioner has been discussed in the succeeding paragraphs.

<u>Change in law or compliance of any existing law:- Regulation 14(3)(ii)</u>

ESP Modification works-

20. The petitioner has claimed total additional capital expenditure of ₹26800.00 lakh during the period 2014-17 (₹10700.00 lakh in 2014-15, ₹12100.00 lakh in 2015-16 and ₹4000.00 lakh in 2016-17) for ESP modification work. In justification of the same, the petitioner has submitted that ESP for all the six units of the generating station is constructed in line with the directions of Chhattisgarh Environment Conservation Board (CECB). The petitioner has further submitted that the Commission vide Order dated 12.10.2012 in Petition No 264/2009 had disallowed the work of ESP modification on the grounds that as modification of ESPs for the generating station is not likely to be completed during the tariff period 2009-14 and would spill over to the next tariff period as therefore the capitalization of additional expenditure could be considered only after completion of Renovation and Modernization (R&M) of ESPs and on successful demonstration that the emission norm of 50 mg/NM3 has been achieved through performance test. Relevant part of the order dated 12.10.2012 is extracted as under:-

> *"It is observed that modification of ESPs for the generating station is not likely to be completed during the tariff period 2009-14 and would spill over to the next tariff period. It is pertinent to point out that capitalization of additional expenditure on this count could be considered only after completion of Renovation and Modernization (R&M) of ESPs and on successful demonstration that the emission norm of 50 mg/NM3 has been achieved through performance test. We direct accordingly."*

21. Accordingly, the petitioner has submitted that the work of ESP has been awarded to M/S BHEL in 2013-14 and an expenditure of ₹14544.00 lakh has been incurred on this work and the same is expected to be completed in the year 2016-17.

Replacement of Halon system of Stage – II

22. The petitioner has claimed total projected additional capital expenditure of ₹790.00 lakh (₹340.00 lakh in 2016-17 and ₹450.00 lakh in 2018-19), along with de-capitalization of ₹64.00 lakh for replacement of Halon system in Stage-II during the period 2014-19. It has also submitted that the work was allowed by the Commission in order dated 12.10.2012 in Petition No. 264/2009 under Regulation 9(2)(ii) of 2009 Tariff Regulations. However, none of the parities responded to carry out the work as per the technical specifications stipulated by the petitioner and there was delay in execution of work and the same is expected to be completed in phase manner for all the units of

Stage-II during the period 2016-19. Accordingly, the petitioner has prayed that the Commission may allow the capitalization of expenditure under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

23. The respondent, MPPMCL has submitted that COD of the generating station 1.6.1990 and all units of the generating station except Unit-VI have completed their useful life as on 1.4.2014 and the generating station will complete its useful life in 31.5.2015. Accordingly, the respondent has submitted that the additional capital expenditure of such a huge amount is not justified in any manner. It has further submitted that the petitioner has also claimed the Compensation allowance and Special allowance and hence the claim of the petitioner may be rejected. In response, the petitioner has clarified that the additional capital expenditures for the period 2014-19 has been claimed as per Regulation 14 of the 2014 Tariff Regulations and the Compensation allowance is provided only for assets of minor nature. It has further submitted that Regulation 17 is exclusive of the items covered under compensation allowance and is separately allowable.

24. We have considered the submissions of the parties. It is observed that Units I to V of the generating station has already completed useful life of 25 years and Unit VI would also complete useful life of 25 years during the period 2014-19. In terms of Regulation 15 of the 2014 Tariff Regulations, the petitioner is at the liberty to make an application before the Commission for approval of expenditure towards Renovation and Modernization (R&M) for the purpose of extension of useful life beyond the original useful life. It is however noticed that the petitioner has opted for Special Allowance during the period 2014-19 in order to meet the requirement of expenses including R&M beyond the useful life of the generating station. In this background, we are not inclined to allow the projected additional capital expenditure claimed by the petitioner under Regulation 14(3)(ii) of the 2014 Tariff Regulations. Accordingly, the petitioner shall meet the expenses from the Special Allowance allowed to the generating station. However, the de-capitalization of ₹64.00 lakh for replacement of Halon system of Stage-II is allowed.

Ash dyke works– Regulation 14(3)(iv)

25. The petitioner has claimed projected additional capital expenditure of ₹1192.00 lakh in 2014-15 towards Buttressing of lagoon-I Dhanras ash dyke, total projected additional capital expenditure of ₹3600.00 lakh (₹2000.00 lakh in 2016-17 and ₹1600.00 lakh in 2017-18) towards 5th & 6th raising of Lagoon-I Dhanras Ash Dyke and projected additional capital expenditure of ₹84600.00 lakh (₹12500.00 lakh in 2016-17 and ₹72100.00 lakh in 2018-19) towards New ash dyke works under Regulation 14(3)(iv) of the 2014 Tariff Regulations. In justification, the petitioner has submitted that the work for buttressing of Lagoon-I, Dhanras ash dyke is executed for strengthening the lagoon–I which has already reached the final height of RL 350 M and is required to be done in order to have slope stability before further raising of height of dyke by 10 M for withstanding the pressure exerted on the dyke on account of increase in height of ash Dyke. It has also stated that the buttressing work is executed based on the report submitted by NIT Rourkela and IIT Kanpur.

26. As regards works towards 5th & 6th raising of Lagoon-I Dhanras Ash Dyke, the petitioner has submitted that presently the ash generated from the generating station is disposed in Lagoon-II of Dhanras Ash dyke which is expected to be filled by 2015-16 and in order to sustain the generation and meet the future ash disposal requirement for further raising of existing Dhanras ash dyke, NIT Rourkela and IIT Kanpur were engaged as consultants for exploring the possibility of enhancing the life of existing ash dyke who had recommended a scheme of enhancing Lagoon-I capacity by raising the height by 10 M in two steps by 5 M each. Accordingly, the Petitioner has stated that it has obtained the permission of the Chhattisgarh Environment Conservation Board (CECB) for raising of Lagoon-I of Dhanras ash dyke by further 5 M which was accorded by CECB on 13.3.2014. The petitioner has further stated that the storage capacity created due to above raising shall be filled by 2018-19 and due to increase in height of dyke additional piping system is required for disposal of ash in Lagoon-I.

27. As regards the New ash dyke works, the petitioner has submitted that since land for ash disposal is not available at Dhanras area and in order to meet the future ash disposal requirement,

new ash dyke has been identified at Kosgai hill. It has also stated that the identified location is about 7 Km from existing Dhanras ash dyke and the Hasdeo river runs between them. The petitioner has submitted that the land identified for new ash dyke is around 1100 acres in area and shall cost around ₹12511.00 lakh. It has also stated that in order to dispose ash from the generating unit, additional booster pumping station along with the bridge has to be constructed over the Hasdeo river which is required for laying of pipelines and other facilities required for ash disposal to Kosgai hill area. It has stated that the new ash dyke is expected to enhance the life of station by about 15 years. Accordingly, the petitioner has prayed that the Commission may allow the capitalization for ash dyke raising under Regulation 14(3)(iv) of the 2014 Tariff Regulations.

28. The respondent, MPPMCL has submitted that the Regulation 14(3)(iv) of the 2014 Tariff Regulation provides for capitalization of deferred works relating to ash pond or ash handling system in the original scope of work. It has further submitted that many units of this generating station have completed their useful life as on 1.4.2014 and the whole station will complete its useful life on 31.5.2015 and hence, the additional capital expenditure of such a huge amount is not justified. In response, the petitioner has submitted that ash generation and ash disposal are integral part of the generation process and is a continuous process. It has further submitted that the Commission had considered this work under original scope of work while issuing the order dated 12.10.2012 in Petition No. 264/2009 and order dated 5.11.2014 in Petition No. 230/GT/2013 and had allowed the same after due prudence check.

29. We have considered the submissions of the parties. It is observed that Units I to V of the generating station has already completed useful life of 25 years and Unit VI would also complete useful life of 25 years during the period 2014-19. In terms of Regulation 15 of the 2014 Tariff Regulations the petitioner is at the liberty to make an application before the Commission for approval of expenditure towards Renovation and Modernization (R&M) for the purpose of extension of useful life beyond the original useful life. It is however noticed that the petitioner has opted for Special Allowance during the period 2014-19 in order to meet the requirement of expenses including

R&M beyond the useful life of the generating station. In this background, we are not inclined to allow the projected additional capital expenditure of ₹89392.00 lakh for Ash dyke related works claimed by the petitioner under Regulation 14(3)(iv) of the 2014 Tariff Regulations. Accordingly, the petitioner shall meet the expenses from the Special Allowance allowed to the generating station.

30. Based on the above discussions, no projected additional capital expenditure is allowed during the period 2014-19. However, the de-capitalization of ₹64.00 lakh (₹28.00 lakh in 2016-17 and ₹36.00 lakh in 2018-19) for replacement of Halon system of Stage-II is allowed.

31. Accordingly, the capital cost allowed for the generating station for the period 2014-19 is as under:

(₹in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Capital Cost	178071.97	178071.97	178071.97	178043.97	178043.97
Add: Additional capital expenditure	0.00	0.00	(-)28.00	0.00	(-)36.00
Closing Capital Cost	**178071.97**	**178071.97**	**178043.97**	**178043.97**	**178007.97**

Debt-Equity Ratio

32. 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 ration 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.

33. Accordingly, the gross normative loan and equity amounting to ₹90990.26 lakh and ₹87081.70 lakh, respectively as on 31.3.2014 as considered in order dated 25.1.2017 in Petition No. 345/GT/2014, has been considered as gross normative loan and equity as on 1.4.2014. Further, 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 the 2014 Tariff Regulations.

Return on Equity

34. 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.

35. 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.

36. The petitioner has claimed return on equity considering base rate of 15.50% and effective tax rate of 23.939% from 2014-15 to 2018-19. The respondent, MPPMCL has submitted that the

petitioner has claimed gross normative equity amounting to ₹88661.00 lakh against claimed capital cost of ₹183337.00 lakh as on 1.4.2014 which is about 48% of capital cost. The cumulative depreciation recovered by the petitioner is ₹162606.00 lakh and is not allowed to recover ROE on about 50% of capital cost. Hence it has submitted that ROE may be allowed on only 30% of the admitted capital cost as on 1.4.2014. In response, the petitioner clarified that the generating station was commercialized before 1.4.2009 and as per the extant Regulations the debt-equity ratio for the generating station is 50:50.

37. We have considered the submissions of the parties. In response to the direction of the Commission in Petition No. 290/GT/2014 (pertaining to approval of tariff of Singrauli STPS for 2014-19), the petitioner vide affidavit dated 23.9.2015 has worked out the effective tax rate of 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of the tariff petitions filed by the petitioner for 2014-19, the respondent beneficiaries had raised the issue regarding the computation of effective tax rate. Accordingly, in terms of the direction of the Commission, the petitioner vide affidavit dated 8.1.2016 in Petition No. 280/GT/2014 (pertaining to tariff of Farakka STPS, Stage-III) has filed the Auditor's Certificate regarding the deposit of advance tax on generation business for the year 2014-15 and Income Tax return for the year 2014-15 (AY 2015-16). We have perused these documents. Though the 2014 Tariff Regulations specify the computation of effective tax rate on the basis of tax paid, we deem it proper to allow the grossing up on MAT rate considering the fact that the matter is being decided and disposed of during 2016-17. Accordingly, for the present, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards till 2018-19 for grossing up of base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for 2014-15 and 19.705% for 2015-16 onwards subject to true-up. 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	87081.70	87081.70	87081.70	87073.30	87073.30
Addition of Equity due to additional capital expenditure	0.00	0.00	(-)8.40	0.00	(-)10.80

Normative Equity-Closing	87081.70	87081.70	87073.30	87073.30	87062.50
Average Normative Equity	87081.70	87081.70	87077.50	87073.30	87067.90
Return on Equity (Base Rate) (%)	15.500	15.500	15.500	15.500	15.500
Tax Rate for the year (%)	20.961	21.342	21.342	21.342	21.342
Rate of Return on Equity (Pre Tax)(%)	19.610	19.705	19.705	19.705	19.705
Return on Equity(Pre Tax) annualised	**17076.72**	**17159.45**	**17158.62**	**17157.79**	**17156.73**

Interest on Loan

38. 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:

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.
(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such refinancing.

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

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

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

(a) The gross normative loan of ₹90990.26 lakh as on 1.4.2014 has been considered.

(b) Cumulative repayment of loan of ₹90493.00 lakh has been considered as on 1.4.2014

(c) Addition to normative loan on account of the admitted additional capital expenditure has been considered on year to year basis.

(d) Depreciation allowed has been considered as repayment of normative loan during the respective years of the tariff period 2014-19.

(e) In line with the provisions of the regulation, the weighted average rate of interest has been calculated applying the actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the 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.

40. The necessary calculation for interest on loan is as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Gross opening loan	90990.26	90990.27	90990.27	90970.67	90970.67
Cumulative repayment of loan upto previous year	90493.00	90990.27	90990.27	90970.67	90970.67
Net Loan Opening	497.27	0.00	0.00	0.00	0.00
Addition due to additional capital expenditure	0.00	0.00	(-)19.60	0.00	(-)25.20
Repayment of loan during the year	497.27	0.00	0.00	0.00	0.00
Less: Repayment adjustment on account of de-capitalization	0.00	0.00	19.60	0.00	25.20
Net Repayment	497.27	0.00	(-)19.60	0.00	(-)25.20
Net Loan Closing	0.00	0.00	0.00	0.00	0.00
Average Loan	248.63	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest of loan	6.245	6.129	5.927	5.780	5.695
Interest on Loan	**15.53**	**0.00**	**0.00**	**0.00**	**0.00**

Depreciation

41. 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."

42. The cumulative depreciation amounting to ₹158600.76 lakh as on 31.3.2014 as considered in order dated 25.1.2017 in Petition No. 345/GT/2014 has been considered for the purpose of tariff. Accordingly, the balance depreciable value (before providing depreciation) for the year 2014-15 works out to ₹922.32 lakh.

43. Accordingly, depreciation has been computed as follows:

(₹in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Capital Cost	178071.97	178071.97	178071.97	178043.97	178043.97
Add: Additional Capital Expenditure	0.00	0.00	(-)28.00	0.00	(-)36.00
Closing Capital Cost	178071.97	178071.97	178043.97	178043.97	178007.97
Average Capital Cost	178071.97	178071.97	178057.97	178043.97	178025.97
Balance useful life at the beginning of the period	0.00	0.00	0.00	0.00	0.00
Depreciable value (excluding land)@ 90%	159523.08	159523.08	159510.48	159497.88	159481.68
Balance depreciable Value	922.32	0.00	0.00	0.00	0.00
Depreciation (annualized)	**922.32**	**0.00**	**0.00**	**0.00**	**0.00**
Cumulative depreciation up to previous year	158600.76	159523.08	159523.08	159497.88	159497.88
Less: Cumulative Depreciation adjustment on account of un-discharged liabilities	0.00	0.00	0.00	0.00	0.00
Less: Cumulative Depreciation reduction due to de-capitalization	0.00	0.00	25.20	0.00	32.40
Cumulative depreciation (at the end of the period)	159523.08	159523.08	159497.88	159497.88	159465.48

Compensation Allowance

44. Regulation 17(1) 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*

45. The petitioner has claimed compensation allowance (unit-wise) to meet expenses on new assets of capital nature including in the nature of minor assets as under:

(₹ in lakh/MW)

2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
500.00	500.00	0.00	0.00	0.00

46. The respondent, MPPMCL has submitted that the compensation allowance is allowed in lieu of non-admissibility of additional capital expenditure @ ₹/MW/Year upto the useful life of the generating unit. It has stated that the generating unit of the plant is completing their useful life at any point of time during the concerned financial year and therefore, the compensation allowance has to be allowed on pro-rata basis upto the useful life of the plant since after completion of 25 years of service, there is no prescribed rate for allowing compensation allowance. In response, the petitioner has submitted that the compensation allowance has been claimed for different units and the Tariff Regulations do not stipulate any pro rata payment for the allowances.

47. We have considered the submission of the parties. Units I to V have already completed useful life of 25 years, Unit VI will be completing useful life of 25 years in 2015-16. Accordingly the compensation allowance claimed by the petitioner is allowed as under:

(₹in lakh/MW)

Description	Unit VI
Capacity in MW	500
Compensation Allowance Allowed	
2014-15	500.00
2015-16	500.00
2016-17	0.00
2017-18	0.00
2018-19	0.00
Total	**1000.00**

Special Allowance

48. In terms of Regulation 16 of 2014 Tariff Regulations, the Special Allowance claimed by the petitioner is as under:-

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
11056.83	11758.94	16747.00	17810.44	18941.40

49. As per Regulation 16(2) of 2014 Tariff Regulations, the Special Allowance for Stage-I and Stage-II of the generating station has been worked out and allowed as under:-

(₹in lakh)

Units	Capacity in MW	COD	Year of completion of Useful life	2014-15	2015-16	2016-17	2017-18	2018-19
I	200	1.8.1983	2013-14	1328.51	1412.87	1502.59	1598.01	1699.48
II	200	1.1.1984	2013-14	1328.51	1412.87	1502.59	1598.01	1699.48
III	200	1.6.1984	2014-15	1328.51	1412.87	1502.59	1598.01	1699.48
IV	500	1.3.1988	2015-16	3321.29	3532.19	3756.49	3995.02	4248.71
V	500	1.4.1989	2015-16	3750.00	3988.13	4241.37	4510.70	4797.13
VI	500	1.6.1990	2016-17	0.00	0.00	4241.37	4510.70	4797.13
Total Allowed				**11056.83**	**11758.94**	**16747.00**	**17810.44**	**18941.40**

50. It is noticed that in order dated 25.1.2017 in Petition No. 345/GT/2014 the Commission has allowed a total amount of ₹18939.97 lakh as Special Allowance for the generating station during the period 2009-14. In this order, a total amount of ₹76314.59 lakh has been allowed as Special

Allowance for the generating station during the period 2014-19. Accordingly, we direct the petitioner shall maintain the details of expenditure incurred or utilized from Special Allowance separately for the period 2009-14 and 2014-19 and shall make the details available to the Commission at the time of truing up in terms of the Regulation 8 of the 2014 Tariff Regulations. The petitioner is also directed to furnish the plan of action for utilization of the balance amount of Special Allowance recovered/ expected to be recovered at the time of truing up of the generating station.

O&M Expenses

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

(₹ in lakh/MW)

Unit Size (MW)	2014-15	2015-16	2016-17	2017-18	2018-19
200	23.90	25.40	27.00	28.70	30.51
500	16.00	17.01	18.08	19.22	20.43

52. Proviso to the Regulation 29 (1) (a) of the 2014 Tariff Regulations states as under:

"Provided that the above norms shall be multiplied by the following factors for arriving at norms of O&M expenses for additional units in respective sizes for the units whose COD occurs on or after 1.4.2014 in the same station:

200/210/250 MW	*Additional 5^{th} & 6^{th} units*	*0.90*
	Additional 7^{th} & more units	*0.85*
300/330/350 MW	*Additional 4^{th} & 5^{th} units*	*0.90*
	Additional 6^{th} & more units	*0.85*
500 MW and above	*Additional 3^{rd} & 4^{th} units*	*0.90*
	Additional 5^{th} & above units	*0.85*

53. Accordingly, the petitioner has claimed O&M expenses for 2014-19 as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
38340.00	40755.00	43320.00	46050.00	48951.00

54. As the generating station has 3 units of 200 MW capacity in Stage-I and 3 units of 500 MW capacity in Stage-II and all these units have achieved COD prior to the period 2009-14, the multiplication factors as per proviso to Regulation 19 (a) of the 2009 Tariff regulations and proviso to Regulation 29 (1) (a) of the 2014 tariff regulations are not applicable in this case. Accordingly, the multiplication factor has not been considered while determining the O&M expenses for generating

station for the period 2014-19. Consequently, the normative O&M expenses claimed by the petitioner in terms of the 2014 Tariff Regulations are allowed.

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
38340.00	40755.00	43320.00	46050.00	48951.00

Water Charges

55. 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 capitalisation or consumption of stores and spares and renovation and modernization"

56. 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.

57. The petitioner has claimed water charges based on the expected water consumption of the generating station and the type of cooling water system has also been furnished. The water charges claimed by the petitioner are as follows:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
7030.53	7476.97	7951.76	8456.70	8993.70

58. The details in respect of water charges such as type of cooling water system, water consumption, rate of water charges as applicable for 2013-14 have been furnished by the petitioner as under:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed circuit cooling
Consumption of water	68.34 MCM
Rate of water charges	April 2013- Rs. 9.26/M3 May 2013 - March 2014- Rs. 10.65/M3
Total water charges in 2013-14	Rs. 7030.533 lakh

59. In order to examine the trend of the actual water consumption and rate of water charges, the petitioner was directed vide ROP of the hearing dated 19.4.2016 to furnish the details of the actual water consumption along with the rate of water charges for the last five years (i.e. 2009-10 to 2013-14) along with relevant notification in support of the same. The petitioner vide affidavit dated 23.6.2016 has submitted actual water consumption and water charges(per m3) for all the stages of the generating station as follows:-

Year	Total Annual consumption for the generating station (All Stages in Million Cubic Meter)	Rate (Rs./m3)
2010-11	66.67	7.00
2011-12	66.24	8.05
2012-13	64.47	9.26
2013-14	65.92	10.65
2014-15	64.60	12.24

60. The petitioner has further submitted that the water agreement for the generating station including BALCO Captive Power Plant (BCPP) which is owned and operated by M/s Sterlite has been done based on allocation of water quantity on daily basis for 0.301 MCM and the aggregated billing for water consumption is carried out on monthly basis. It has submitted that if the actual drawl is less than contracted quantity, the minimum payment of water charges is to be made based on allocation equivalent to 90% of the monthly contracted quantity i.e. 9.166 MCM for the generating station & BCPP and if the actual drawl exceeds the contracted quantity on monthly basis, the water charges are payable @1 .5 times of the applicable rate of water charges. It has further submitted that the quantum of water consumed by the generating station is directly affected by the seasonal condition and generation level of the station and in certain months the consumption of water for the generating station is almost equal to the monthly contracted quantity. Accordingly, the petitioner has

submitted that in case the contracted quantity is reduced, it is likely that there would be loss of generation due to reduced availability of water. Thus, it has requested to allow the expenditure pertaining to the allocated quantity for successful and efficient running of the station in long run.

61. We have examined the matter. The petitioner has submitted the total water consumption including Stage-III and the BALCO Captive Power Plant. It is further observed that the petitioner has not depicted the computations towards the payment of actual water charges corresponding to the generating station. It is noted that the petitioner has claimed the same water charges during 2014-15 as in the year 2013-14. The petitioner has claimed the water charges during 2014-15 based on the water consumption and water charges paid during the year 2013-14 and has escalated the same @ 6.35% as per the escalation rate in O&M norms specified by the Commission for the period 2014-19. This escalation rate of 6.35% considered by the petitioner is not in line with the notification dated 25.4.2015 issued by the Water Resource Department, Government of Chhattisgarh, which does not provide for any escalation. Hence, no yearly escalation has been considered in water charges rate in line with notification dated 25.4.2015 of the Government of Chhattisgarh. Based on this, water charges for the period 2014-19 are allowed as under:

(₹ in lakh)

2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
7030.53	7030.53	7030.53	7030.53	7030.53

62. The above water charges are subject to review during true-up based on actual water consumption after prudence check.

63. The respondent, MPPMCL has submitted that O&M expenses claimed by the petitioner are inclusive of water charges which are against the provision of Regulation 29(2) of Tariff Regulations, 2014. In response, the petitioner has submitted that the O&M expenditure recoverable from the beneficiaries consists of Normative O&M expenses under Regulation 29(1) and the water charges as paid for the instant station for the corresponding year under Regulation 29(2)

64. Accordingly, the total O&M expenses including water charges as claimed by the petitioner and allowed for the purpose of tariff is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses as claimed	38340.00	40755.00	43320.00	46050.00	48951.00
O&M Expenses as allowed	38340.00	40755.00	43320.00	46050.00	48951.00
Water charges as claimed	7030.53	7476.97	7951.76	8456.70	8993.70
Water charges as allowed	7030.53	7030.53	7030.53	7030.53	7030.53
Total O&M Expenses as claimed (including Water charges)	45370.53	48231.97	51271.76	54506.70	57944.70
Total O&M Expenses as allowed(including Water charges)	**45370.53**	**47785.53**	**50350.53**	**53080.53**	**55981.53**

Capital spares

65. The petitioner has not claimed capital spares on projection basis during the period 2014-19. Accordingly, the same 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.

Operational Norms

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

Target Availability (%)	83.00
Heat Rate (kcal/kWh)	2396.43
Auxiliary Energy Consumption (%)	6.68%
Specific Oil Consumption (ml/ kWh)	0.50

67. The operational norms claimed by the petitioner are in accordance with Regulation 36 of the 2014 Tariff Regulations and discussed as under:

Normative Annual Plant Availability Factor (NAPAF)

68. Regulation 36 (A) (a) of the 2014 Tariff Regulations provides as under:

(a) All Thermal generating stations, except those covered under clauses (b) (c) (d) & (e)- 85%.

Provided that in view of the shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the NAPAF for recovery of fixed charges shall be 83% till the same is reviewed.
The above provision shall be reviewed based on actual feedback after 3 years from 01.04.2014.

69. The respondent, MPPMCL has submitted that the petitioner has claimed target availability of 83% which is gross violation of the 2014 Tariff Regulations. In response, the petitioner has submitted that to mitigate the risk of fixed charges by the generators, the Commission has decided that in view of shortage of coal and uncertainty of assured coal supply on sustained basis. The fixed charges will be recovered at availability of 83% which shall be reviewed by the Commission after 3 years from 1.4.2014.

70. The petitioner has considered the Target Availability norm of 83% during 2014-19. Hence, in view of the above, the target availability of 83% is allowed for the period 2014-15 to 2016-17 and 85% for the period 2017-18 & 2018-19 in terms of the Regulation 36(A) (a) of the 2014 Tariff Regulations.

Heat Rate (kCal/kWh)

71. The petitioner has claimed the heat rate as 2396.43 kCal/kWh. Regulation 36(C)(a) of the 2014 Tariff Regulations, provides Gross Station Heat Rate of 2450.00 kCal/kWh for existing coal based thermal generating stations of 200 MW sets and 2375.00 kCal/kWh for existing coal based thermal generating stations of 500 MW sets. Hence, the heat rate considered by the petitioner is as per norms and is allowed.

Auxiliary Energy Consumption

72. The petitioner has claimed Auxiliary Energy Consumption at 6.68% during 2014-19 period. Regulation 36(E)(a) of Tariff Regulations, 2014 provides Auxiliary Energy Consumption of 8.5% for coal based generating stations of 200 MW sets, 5.25% for coal based generating stations of 500 MW sets and additional 0.5% for thermal generating stations with induced draft cooling towers.

73. In view of the above, the Auxiliary Energy Consumption is considered as 6.68% as per the norms and the same is allowed for the purpose of tariff.

Specific Oil Consumption

74. Regulation 36(D)(a) of the 2014 Tariff Regulations, provides secondary fuel oil consumption of 0.50 ml/kWh for coal-based generating station. Hence, the secondary fuel oil consumption considered by the petitioner is as per norms and is allowed.

Interest on Working Capital

75. 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

76. The petitioner has claimed cost for fuel components in working capital based on "as fired" GCV of coal procured and burnt 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)

Sl. No.		2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days	5514.00	5529.11	5514.00	5514.00	5514.00
1B	Cost of Coal for Generation for 30 days	11028.00	11058.21	11028.00	11028.00	11028.00
2	Cost of Main Secondary Fuel Oil for 2 months	554.20	555.72	554.20	554.20	554.20

77. The respondent, MPPMCL has submitted that the information of weighted average GCV of coal as fired is against the provisions contained in Regulation 30(6)(b) of the 2014 Tariff Regulations as the same provides that the weighted average gross calorific value of primary fuel on as received basis has to be considered. It has accordingly submitted that the petitioner may be directed to furnish the information of GCV of primary fuel on as received basis. In response, the petitioner has submitted that the due to unavailability of infrastructure to measure GCV of coal 'as received' basis.

78. The issue of "as received" GCV for computation of energy charges was challenged by NTPC and other generating companies through writ petition in the High Court of Delhi. The writ petition was heard on 7.9.2015 and Hon'ble High Court of Delhi had directed that the Commission shall decide the place from where the sample of coal should be taken for measurement of GCV of coal on as received basis within 1 month on the request of petitioners.

79. As per the directions of the Hon'ble High Court, the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014 has decided as under:

> *"58. In view of the above discussion, the issues referred by the Hon'ble High Court of Delhi are decided as under:*
> *(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by taking*

samples after the crusher set up inside the generating station, in terms of Regulation 30(6) of the 2014 Tariff regulations.

(b) The samples for the purpose of measurement of coal on as received basis should be collected from the loaded wagons at the generating stations either manually or through the Hydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal is unloaded. While collecting the samples, the safety of personnel and equipment as discussed in this order should be ensured. After collection of samples, the sample preparation and testing shall be carried out in the laboratory in accordance with the procedure prescribed in IS 436(Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC."

80. Further, the petitioner has claimed energy charge rate (ECR) of ₹ 97.386 Paise/kWh based on the weighted average price, GCV of coal (as fired basis) & oil procured and burnt for the preceding three months. It is observed that the petitioner has not placed on record the GCV of coal on "as received‟ basis though the petitioner was statutorily required to furnish such information with effect from 1.4.2014. In compliance with the direction of the Hon'ble High Court of Delhi, the Commission in its order dated 25.1.2016 in Petition No. 283/GT/2014 has clarified that the measurement of GCV of coal on as received basis shall be taken from the loaded wagons at the unloading point either manually or through the Hydrolic Augur. The petitioner has not submitted the required data regarding measurement of GCV of coal in compliance with the directions contained in the said order dated 25.1.2016. The present petition cannot be kept pending till the petitioner submits the required information. Hence, the Commission has decided to compute fuel components and the energy charges in the working capital by provisionally taking the GCV of coal on as "billed basis" and allowing an adjustment for total moisture as per the formula given as under:

$$\frac{GCV \times (1-TM)}{(1 - IM)}$$

Where: GCV=Gross Calorific value of coal
TM=Total moisture
IM= Inherent moisture

81. In view of the above, the cost for fuel components in working capital have been computed at 85% NAPAF for the years 2017-18 and 2018-19 based on "as billed" GCV of coal and price of coal procured and secondary fuel oil for the preceding three months from January 2014 to March 2014 and allowed as under:

(₹in lakh)

Sl. No.		2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days	4091.35	4091.35	4091.35	4189.94	4189.94
1B	Cost of Coal for Generation for 30 days	8182.70	8182.70	8182.70	8379.88	8379.88
2	Cost of Main Secondary Fuel Oil for 2 months	554.20	555.72	554.20	567.56	567.56

82. Similarly, the Energy Charge Rate (ECR) based on operational norms specified in 2014 Regulations and on "as billed" GCV of coal for preceding 3 months i.e. March to January 2014 is worked out as under:

	Unit	2014-19
Capacity	MW	2100.00
Gross Station Heat Rate	kCal/kWh	2396.43
Aux. Energy Consumption	%	6.68%
Weighted average GCV of oil	kCal/lt.	10093.57
Weighted average GCV of Coal (As Billed)	kCal/kg	4150.00
Adjustment on account of coal received at the generating station for equilibrated basis (Air dried) in the billed GCV of Coal India		*
Weighted average price of oil	₹/KL	43555.91
Weighted average price of Coal	₹/MT	1131.53
Rate of energy charge ex-bus	₹/kWh	0.722**

** To be calculated by the petitioner based on the adjustment formula*
*** To be revised as per the figures at Sr. No. 6*

83. The GCV of coal as computed above shall be adjusted in the light of the GCV of coal on "as received basis" computed by the petitioner as per our directions in order dated 25.1.2016 in Petition No. 283/GT/2014.

Maintenance spares

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

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
9074.11	9646.39	10254.35	10901.34	11588.94

85. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the operation & maintenance expenses as specified in Regulation 29. As specified in

Regulation 29 (2) of the 2014 Tariff Regulations and as allowed by the Commission in order dated 6.10.2015 in Petition No. 186/GT/2014 (Sugen Power Plant), the maintenance spares @ 20% of the operation & maintenance expenses including water charges, allowed are as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
9074.11	9557.11	10070.11	10616.11	11196.31

Receivables

86. Receivables equivalent to two months of capacity charge and energy charges have been worked out and allowed as under:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges (two months)	17146.24	17193.21	17146.24	17559.40	17559.40
Fixed Charges (two months)	11793.19	12076.02	12528.84	13028.60	13541.96
Total	**28939.43**	**29269.24**	**29675.07**	**30588.00**	**31101.36**

O&M Expenses

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

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3780.88	4019.33	4272.65	4542.22	4828.72

88. Based on the O&M expense norms specified by the Commission and in terms of the Commission's order dated 6.10.2015 in Petition No. 186/GT/2014, the O&M expenses for 1 month are allowed as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3780.88	3982.13	4195.88	4423.38	4665.13

Rate of interest on working capital

89. 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."

90. In terms of the above regulations, SBI PLR of 13.50% (Bank rate 10.00 + 350bps) 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 towards stock- 15 days	4091.35	4091.35	4091.35	4189.94	4189.94
Cost of coal towards generation- 30 days	8182.70	8182.70	8182.70	8379.88	8379.88
Cost of secondary fuel oil- 2 months	554.20	555.72	554.20	567.56	567.56
Maintenance Spares	9074.11	9557.11	10070.11	10616.11	11196.31
Receivables- 2 months	28939.43	29269.24	29675.07	30588.00	31101.36
O & M expenses- 1 Month	3780.88	3982.13	4195.88	4423.38	4665.13
Total Working Capital	**54622.67**	**55638.24**	**56769.31**	**58764.85**	**60100.17**
Rate of Interest	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	**7374.06**	**7511.16**	**7663.86**	**7933.25**	**8113.52**

91. Accordingly, 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
Depreciation	922.32	0.00	0.00	0.00	0.00
Interest on Loan	15.53	0.00	0.00	0.00	0.00
Return on Equity	17076.72	17159.45	17158.62	17157.79	17156.73
Interest on Working Capital	7374.06	7511.16	7663.86	7933.25	8113.52
O&M Expenses	45370.53	47785.53	50350.53	53080.53	55981.53
Compensation Allowance	500.00	500.00	0.00	0.00	0.00
Special allowance	11056.83	11758.94	16747.00	17810.43	18941.40
Total	**82315.99**	**84715.08**	**91920.01**	**95982.02**	**100193.18**

Month to Month Energy Charges

92. 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 weighted average Gross calorific value of primary fuel shall be arrived in proportion 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 ₹/ml during the month.”

93. The petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the formulae given under Regulation 30(6)(a) of the 2014 Tariff Regulations, 2014 read with Commission’s order dated 25.1.2016 in Petition No. 283/GT/2014.

94. The petitioner has been directed by the Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014, to introduce helpdesk to attend to the queries of the beneficiaries with regard to the Energy Charges. Accordingly, contentious issues if any, which arise regarding the Energy Charges, should be sorted out with the beneficiaries at the Senior Management level.

Application Fee and Publication Expenses

95. 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 2014-15 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 2014-16 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2016-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

96. 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.

97. Petition No. 323/GT/2014 is disposed of in terms of the above.

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