CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 338/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 generation tariff of Vindhyachal Super Thermal Power Station, Stage-I (6 x 210 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 Company 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 Company Ltd.,
   P.O. Sundar Nagar,
   Danganiya, Raipur- 492 013

5. 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

For Respondents: Shri Rishabh Singh, Advocate, MPPMCL

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Vindhyachal Super Thermal Power Station, Stage-I (1260 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 1260 MW comprises of six units of 210 MW each. The dates of commercial operation (COD) of the different units of the generating station are as under:

Unit	COD
Unit-I	1.9.1988
Unit-II	1.1.1989
Unit-III	1.2.1990
Unit-IV	1.9.1990
Unit-V	1.4.1991
Unit-VI	1.2.1992

3. Petition No. 227/2009 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 12.9.2012 had approved the annual fixed charges of the generating station tariff based on the capital cost of ₹148042.37

lakh, after removing the un-discharged liabilities amounting to ₹445.60 lakh as on 1.4.2009. Thereafter, in Petition No. 182/GT/2013 filed by the petitioner for revision of the annual fixed charges of the generating station in terms of proviso to Regulation 6(1) of the 2009 Tariff Regulations, the Commission vide order dated 7.8.2014 had revised the tariff of the generating station. Subsequently, the Commission vide order dated 5.12.2016 in Petition No. 306/GT/2014 revised the tariff of the generating station for the period 2012-14 in terms of Regulation 6 (1) of the 2009 Tariff Regulations. Accordingly, the annual fixed charges approved by the Commission`s order dated 5.12.2016 are summarized as under:

(₹in lakh)

	2009-10	**2010-11**	**2011-12**	**2012-13**	**2013-14**
Depreciation	369.48	379.02	383.27	483.97	541.64
Interest on Loan	241.56	196.75	169.99	165.12	166.24
Return on Equity	17278.11	17069.61	16863.28	16889.62	17302.75
Interest on Working Capital	5895.54	5965.52	6052.93	6128.19	6225.24
O&M Expenses	22932.00	24242.40	25628.40	27102.60	28652.40
Secondary fuel oil cost	2132.38	2132.38	2138.23	2132.38	2132.38
Compensation Allowance	567.00	630.00	756.00	819.00	819.00
Special Allowance	0.00	0.00	0.00	0.00	0.00
Total	**49416.08**	**50615.67**	**51992.09**	**53720.89**	**55839.65**

4. The petitioner vide affidavit dated 13.8.2014 has prayed for 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 in this petition are as under:

Capital Cost

(₹in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Capital Cost	153066.30	153669.42	154807.44	167757.44	168857.44
Add: Additional capital expenditure	603.12	1138.02	12950.00	1100.00	500.00
Closing Capital Cost	153669.42	154807.44	167757.44	168857.44	169357.44
Average Capital Cost	153367.86	154238.43	161282.44	168307.44	169107.44

Annual Fixed Charges

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	1732.51	2228.40	7632.08	5856.54	71.28
Interest on Loan	278.04	183.35	179.37	111.29	8.98
Return on Equity	15323.17	15376.40	15807.03	16236.51	16285.42
Interest on Working Capital	7884.60	8037.97	8293.73	8406.20	8426.20
O&M Expenses	32780.61	34839.94	37036.02	39369.54	41853.82
Compensation Allowance	840.00	630.00	210.00	0.00	0.00
Special allowance	3150.00	5025.04	8906.88	11366.96	12088.76
Total	**61988.93**	**66321.09**	**78065.12**	**81347.04**	**78734.46**

5. 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

6. 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."

7. The petitioner vide affidavit dated 13.8.2014 has claimed the annual fixed charges based on the opening capital cost of ₹153066.30 lakh as on 1.4.2014 as against ₹148158.63 lakh on 31.3.2014 admitted by the Commission vide order dated 5.12.2016 in Petition No. 306/GT/2014. The un-discharged liabilities of ₹539.39 lakh (para 46 of aforesaid order) correspond to the approved capital cost of ₹148158.63 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 ₹148158.63 lakh (on cash basis).

Actual/Projected Additional Capital Expenditure during 2014-19

8. 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."

9. Clause 2 of Regulation 16 provides as follows:

" *(2) The Special Allowance shall be @ Rs. 7.5 lakh/MW/year for the year 2014-15 and thereafter escalated @ 6.35% every year during the tariff period 2014-15 to 2018-19, unitwise from the next financial year from the respective date of the completion of useful life with reference to the date of commercial operation of the respective unit of generating station:*

Provided that in respect of a unit in commercial operation for more than 25 years as on 1.4.2014, this allowance shall be admissible from the year 2014-15:

Provided further that the special allowance for the generating stations, which, in its discretion, has already availed of a „special allowance" in accordance with the norm specified in clause (4) of regulations 10 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff Determination) Regulations, 2009, shall be allowed Special Allowance by escalating the special allowance allowed for the year 2013-14 @ 6.35% every year during the tariff period 2014-15 to 2018-19."

10. Clause 2 of Regulation 17 provides as follows:

" (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 (Rs lakh/MW/year)
0-10	Nil
11-15	0.20
16-20	0.50
21-25	1.00

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

(₹ in lakh)

Sl. No.	Head of Work /Equipment	Regul-ation	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Near Zero discharge of water	14(3)(ii)	0.00	0.00	0.00	500.00	500.00	**1000.00**
2	CEMS Package		103.12	7.14	0.00	0.00	0.00	**110.26**
3	Installation of Water meter		0.00	100.00	0.00	0.00	0.00	**100.00**
4	Replacement of Halon System of Stage-I		0.00	700.00	0.00	0.00	0.00	**700.00**
5	CCTV Surveillance System for ST-I	14(3)(iii)	0.00	100.00	400.00	400.00	0.00	**900.00**
6	Installation of CCTV in St-I & Cable Gallery		0.00	0.00	200.00	200.00	0.00	**400.00**
7	Augmentation of existing fire fighting system in FOPH, Cable Gallery & CHP.		0.00	0.00	850.00	0.00	0.00	**850.00**
8	Ash Dyke Raising Work	14(3)(iv)	500.00	230.88	11500.0	0.00	0.00	**12230.88**
10	R&M of ESP for VSTPS-I							**0.00**
	Total Additional Capitalization		**603.12**	**1138.02**	**12950.00**	**1100.00**	**500.00**	**16291.14**

12. Based on the submissions of the petitioner and the documents available on record, the projected additional capital expenditure claimed by the petitioner has been discussed in the succeeding paragraphs.

Change in law – Regulation 14(3)(ii)

Near Zero discharge of water

13. The petitioner has claimed projected additional capital expenditure of ₹500.00 lakh each during the years 2017-18 and 2018-19 for near zero discharge of water. In justification of the same it has submitted that Commission vide order dated 12.9.2012 in Petition No. 227/2009 had allowed expenditure under this head for the period 2009-14 period but during execution it was observed that it was interfering with the undergoing expansion work at Stage-IV & Stage-V of the VSTPS. Hence the petitioner has stated that it was decided to implement the near zero discharge

of water scheme in a comprehensive manner and therefore, the petitioner could not incur any expenditure during the said control period.

CEMS Package

14. The petitioner has claimed projected additional capital expenditure of ₹103.12 lakh in 2014-15 and ₹7.14 lakh in 2015-16 towards Continuous Emission Monitoring System (CEMS).In justification for the same the petitioner has submitted that CEMS is a new and statutory requirement as per guidelines issued by Ministry of Environment & Forest (MOEF) vide circular dated 6.4.2011. The petitioner has prayed as per guidelines, the emission as well as ambient air quality (as per notified standards) is to be continuously monitored. It has further submitted that Commission in order dated 12.9.2012 in Petition No 227/2009 had allowed expenditure towards SOx, NOx & CO2 analyser system in respect of the generating station and the work was awarded and the same shall be implemented and capitalised during the period 2014-19. Accordingly, it has prayed that the expenditure may be allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

Installation of Water meter

15. The petitioner has further claimed projected additional capital expenditure of ₹100.00 lakh in 2015-16 for Installation of water meter and has submitted that as per the Environmental consent order of MoEF, GoI it has been mandated to install water meters at the intake point. Accordingly, the petitioner has enclosed a copy of the letter and has prayed that the expenditure may be allowed.

Replacement of Halon System of Stage-I

16. The petitioner has claimed additional capital expenditure of ₹700.00 lakh in 2015-16 for replacement of Halon System of Stage-I under Regulation 14(3)(ii) of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that the Commission vide order dated 12.9.2012 in Petition No. 227/2009 had allowed expenditure for the period 2009-14

period but due to insufficient number of bidders in tendering process, retendering had been done. Accordingly, this work could not be completed during the control period 2009-14. The petitioner has stated that as per the Environmental guidelines, the same is being expedited and is expected to be completed in the year 2015-16. Accordingly, the petitioner has prayed that the Commission may allow the capitalization of expenditure.

17. In respect of the above claim, the respondent, MPPMCL has submitted that COD of the generating station 1.2.1992 and many of its units have completed useful life as on 1.4.2014 and the whole plant will complete its useful life in 2016-17. The respondent has also 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 Compensation Allowance and Special Allowance and hence the additional capitalization claimed by the petitioner during the fag end of useful life may be disallowed. In response, the petitioner has submitted that additional capital expenditure claimed is as per Regulation 14 of the 2014 Tariff Regulations. It has further submitted that Compensation allowance claimed is in line with Regulation 17 of the 2014 Tariff Regulations and the same is provided only for assets of minor nature. It has further submitted that Regulation 14 is exclusive of the items covered under Compensation Allowance and is separately allowable. Accordingly, it has submitted that the claim of additional capital expenditure allowed.

18. We have examined the matter. It is noticed that the petitioner has availed Special/Compensation Allowance in terms of the 2014 Tariff Regulations in order to meet the expenses on new assets of capital nature and assets including minor assets of the nature of operational expenses. The petitioner shall meet this expenditure from special/compensation allowance allowed by the Commission. Therefore, there is no reason to allow the projected additional capital expenditure claimed by the petitioner in respect of assets (Sl. No. 1 to 4 above) under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

Higher security and safety of the plant - Regulation 14(3)(iii)

19. The petitioner has claimed projected capital expenditure of ₹900.00 lakh for CCTV Surveillance System for Stage-I and has submitted that the same is as per the recommendation of top national security agency. It has already claimed projected capital expenditure of ₹400.00 lakh for installation of CCTV in Stage-I & Cable Gallery and has submitted that the same is as per the recommendations of CISF. The petitioner has further claimed projected capital expenditure of ₹850.00 lakh in 2016-17 for Augmentation of existing fire fighting system in FOPH and has submitted that the same is in accordance with Regulation 12(5) of Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2010. Accordingly, the petitioner has prayed that the Commission may allow the capitalization and these expenditure under Regulation 14(3)(iii of the 2014 Tariff Regulations.

20. In response, MPPMCL has submitted that the petitioner has claimed ₹1200.00 lakh for CCTV surveillance system and installation of CCTV. It is submitted that this type of expenditure should be accommodated under Special allowance and Compensation allowance being recovered by the petitioner because the plant will complete its useful life when these expenditures are proposed to be incurred and hence the same is liable to be rejected.

21. We have examined the matter. It is noticed that the petitioner has availed Special/Compensation Allowance in terms of the 2014 Tariff Regulations in order to meet the expenses on new assets of capital nature and assets including minor assets of the nature of operational expenses. The petitioner shall meet this expenditure from special/compensation allowance allowed by the Commission. Therefore, there is no reason to allow the projected additional capital expenditure claimed by the petitioner in respect of CCTV Surveillance System for Stage-I and CCTV in cable gallery under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

Ash dyke works- Regulation 14 (3)(iv)

22. The petitioner has claimed projected capital expenditure of ₹500.00 lakh in 2014-15, ₹230.88 lakh in 2015-16 and ₹11500.00 lakh in 2016-17 towards Ash dyke raising work under Regulation 14(3)(iv) of 2014 Tariff Regulations. In justification, the petitioner has submitted that ash dyke raising is the continuous and periodic activity, which is necessitated for disposal of ash for the life of the plant and helps generate additional space for disposal of ash into the same ash dyke, thereby increasing the utilization of existing ash dyke land. Accordingly, the petitioner has prayed that the Commission may allow the capitalization for ash dyke raising under Regulation 14(3)(iv) of Tariff Regulations 2014.

23. The respondent, MPPMCL has submitted that the units of this plant have completed their useful life as on 1.4.2014 and the whole plant will complete its useful life in the year 2016-17 and hence the additional capital expenditure of such a huge amount is not justified in any manner and does not qualify under the Regulation 14(3)(iv) of 2014 Tariff Regulations, unless the petitioner submits some documentary evidence that this expenditure belongs to original scope of work. The respondent has also submitted that the plant will complete its useful life during the year 2016-17 and there is no justification for allowing the additional capitalization of ₹11500.00 lakh in 2016-17 and hence the claim of the petitioner is liable to be rejected. 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 12.9.2012 in Petition No. 227/2009 and had allowed the petitioner's claim, after due prudence check. Accordingly, the petitioner has submitted that the contention of the respondent is liable to be rejected.

24. We have examined the matter. It is observed that the petitioner has claimed projected additional capital expenditure of the said amounts during the fag end of the completion of useful life of 25 years of the generating station. It is also not clear as to whether the units of this generating station are to be phased out or continued in operation. In this background, we are not

inclined to consider the capitalization of projected additional capital expenditure of ₹12230.88 lakh claimed for ash dyke raising work. However, liberty is granted to the petitioner to claim this expenditure at time truing-up of tariff with proper details and justification for consideration of the Commission. Accordingly, the prayer of the petitioner for capitalization of the expenditure is rejected.

25. Based on the above discussions, the projected additional capital expenditure allowed during the period 2014-19 is summarized as under:

(₹in lakh)

Sr. No	**Head of Work /Equipment**	**Regulation**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**Total**
1	Near Zero discharge of water	14(3)(ii)	0.00	0.00	0.00	0.00	0.00	0.00
2	CEMS Package		0.00	0.00	0.00	0.00	0.00	0.00
3	Installation of Water meter		0.00	0.00	0.00	0.00	0.00	0.00
4	Replacement of Halon System of Stage-I		0.00	0.00	0.00	0.00	0.00	0.00
5	CCTV Surveillance System for ST-I	14(3)(iii)	0.00	0.00	0.00	0.00	0.00	0.00
6	Installation of CCTV in St-I & Cable Gallery		0.00	0.00	0.00	0.00	0.00	0.00
7	Augmentation of existing fire fighting system in FOPH, Cable Gallery & CHP.		0.00	0.00	0.00	0.00	0.00	0.00
8	Ash Dyke Raising Work	14(3)(iv)	0.00	0.00	0.00	0.00	0.00	0.00
10	R&M of ESP for VSTPS-I		0.00	0.00	0.00	0.00	0.00	0.00
11	**Total Additional Capitalization**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

26. Accordingly, the capital cost for the period 2014-19 in respect of the generating station is worked out and allowed as under:

(₹in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Capital Cost	**148158.63**	**148158.63**	**148158.63**	**148158.63**	**148158.63**
Add: Additional capital expenditure	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost	**148158.63**	**148158.63**	**148158.63**	**148158.63**	**148158.63**

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 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.

28. Accordingly, the gross normative loan and equity amounting to ₹74528.51 lakh and ₹73630.11 lakh, respectively as on 31.3.2014 as considered in order dated 5.12.2016 in Petition No. 306/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

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 base rate of 15.5% and effective tax rate of 23.9394% from 2014-15 to 2018-19. This issue being not confined to a single petition and being generic in nature as the issue is applicable to all NTPC petitions uniformly need deliberation. On this issue against specific query through ROP, the petitioner vide its affidavit dated 8.1.2016 in Petition no. 280/GT/2014 (Farakka STPS, Stage-III) has filed Auditor's Certificate regarding deposit of advance tax on generation business for the year 2014-15 as well as Income Tax return for the financial year 2014-15 (Assessment Year 2015-16). We have examined the documents submitted and observed that the regulation prescribe computation of effective tax rate on the basis of tax paid, still we deem it proper to allow grossing up on MAT rate considering the fact that the matter is getting decided in the year 2016-17. Accordingly, 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 up to the year 2018-19 for the purpose of grossing up of base rate of 15.5%. Accordingly, the rate of Return on Equity works out to 19.610% for the year 2014-15 and 19.705% for the year 2015-16 onwards. This is however, 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	73630.11	73630.11	73630.11	73630.11	73630.11
Addition of Equity due to additional capital expenditure	0.00	0.00	0.00	0.00	0.00
Normative Equity-Closing	73630.11	73630.11	73630.11	73630.11	73630.11
Average Normative Equity	73630.11	73630.11	73630.11	73630.11	73630.11
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	**14438.86**	**14508.81**	**14508.81**	**14508.81**	**14508.81**

Interest on Loan

32. 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."

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

(a) The gross normative loan of ₹74528.51 lakh as on 1.4.2014 has been considered.

(b) Cumulative repayment of loan of ₹71359.73 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. Accordingly, net normative closing loan as on 31.3.2017 works out to ₹1869.76 lakh. However, considering the fact that the petitioner has recovered the entire depreciable value corresponding to the admitted capital cost as on 31.3.2017, the remaining balance normative loan shall be repaid by the petitioner out of depreciation recovered till 31.3.2017. Accordingly, for the purpose of tariff ₹1869.76 lakh has been considered as additional repayment during the year 2016-17.

(e) The weighted average rate of interest for loans as provided by the petitioner has been considered for the purpose of tariff and the petitioner is directed to submit the details of loan and calculation of weighted average rate of interest for the period 2014-19 at the time of truing up.

34. 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	74528.51	74528.51	74528.51	74528.51	74528.51
Cumulative repayment of loan upto previous year	71359.73	72009.24	72658.75	74528.51	74528.51
Net Loan Opening	3168.78	2519.27	1869.76	0.00	0.00
Addition due to additional capital expenditure	0.00	0.00	0.00	0.00	0.00
Repayment of loan during the year	649.51	649.51	376.71	0.00	0.00
Additional repayment of loan	0.00	0.00	1493.05	0.00	0.00
Less: Repayment adjustment on account of de-capitalization	0.00	0.00	0.00	0.00	0.00
Add: Repayment adjustment on account of discharges corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00
Net Repayment	649.51	649.51	1869.76	0.00	0.00
Net Loan Closing	2519.27	1869.76	0.00	0.00	0.00
Average Loan	2844.03	2194.52	934.88	0.00	0.00
Weighted Average Rate of Interest of loan	6.867	6.847	6.697	6.556	6.441
Interest on Loan	**195.30**	**150.25**	**62.61**	**0.00**	**0.00**

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. The cumulative depreciation amounting to ₹129411.60 lakh as on 31.3.2014 as considered in order dated 5.12.2016 in Petition No. 306/GT/2014 has been considered for the purpose of tariff. Accordingly, the balance depreciable value (before providing depreciation) for the year 2014-15 and depreciation for the tariff period 2014-19 has been computed as follows:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	148158.63	148158.63	148158.63	148158.63	148158.63
Add: Additional Capital Expenditure	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost	148158.63	148158.63	148158.63	148158.63	148158.63
Average Capital Cost	148158.63	148158.63	148158.63	148158.63	148158.63
Balance useful life at the beginning of the period	2.58	1.58	1.00	0.00	0.00
Depreciable value (excluding land)@ 90%	131092.01	131092.01	131092.01	131092.01	131092.01
Balance depreciable Value	1675.73	1026.22	376.71	0.00	0.00
Depreciation (annualized)	**649.51**	**649.51**	**376.71**	**0.00**	**0.00**
Cumulative depreciation up to previous year	129416.28	130065.79	130715.30	131092.01	131092.01
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	0.00	0.00	0.00
Cumulative depreciation (at the end of the period)	130065.79	130715.30	131092.01	131092.01	131092.01

Compensation Allowance

37. 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*

38. 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)

2014-15	2015-16	2016-17	2017-18	2018-19
840.00	630.00	210.00	0.00	0.00

39. The respondent, MPPMCL has submitted that the compensation allowance is allowed in lieu of non-admissible additional capital expenditure @ ₹/MW/Year upto the useful life of the generating unit. It has also submitted that the generating unit of the plant is completing its useful life at any point of time during the concerned 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 Regulation does not provide for any pro rata payment of the allowance.

40. We have considered the submission of the parties. Units I and II have completed 25 years upto 2013-14, Unit-III has completed 25 years in 2014-15, Unit IV and V will be completing in 2015-16 and Unit-VI in 2016-17. Accordingly the Compensation allowance claimed by the petitioner is allowed as under:

Description	Unit III	Unit IV	Unit V	Unit VI
Capacity in MW	210	210	210	210
2014-15	210.00	210.00	210.00	210.00
2015-16	0.00	210.00	210.00	210.00
2016-17	0.00	0.00	0.00	210.00
2017-18	0.00	0.00	0.00	0.00
2018-19	0.00	0.00	0.00	0.00
Total	**210.00**	**420.00**	**420.00**	**630.00**

Special Allowance

41. Regulation 16 of the 2014 Tariff Regulations provides for Special Allowance for Coal-based/Lignite fired Thermal Generating stations as under:

" (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 modernization 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.

(2) The special Allowance shall be @Rs. 7.5 lakh/MW/year for the year 2014-15 and thereafter escalated @ 6.35 % every year during the tariff period 2014-15 to 2018-19, unit-wise from the next financial year from the respective date of completion of useful life with reference to the date of commercial operation of the respective unit of generating station:

Provided that in respect of a unit in commercial operation for more than 25 years as on 1.4.2014, this allowance shall be admissible from the year 2014-15:

Provided further that the special allowance for the generating stations, which, in its discretion, has already availed of a „special allowance" in accordance with the norms specified in clause (4) of regulations 10 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff Determination) Regulations, 2009, shall be allowed Special Allowance by escalating the special allowance allowed for the year 2013-14 @6.35% every year during the tariff period 2014-15 to 2018-19.

(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.

42. The petitioner has claimed Special Allowance as under:-

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3150.00	5025.04	8906.88	11366.96	12088.76

43. Accordingly, the Special Allowance granted for the generating station is as under:-

(₹in lakh)

Units	Capacity in MW	COD	2014-15	2015-16	2016-17	2017-18	2018-19
I	210	1.9.1988	1575.00	1675.01	1781.38	1894.49	2014.79
II	210	1.1.1989	1575.00	1675.01	1781.38	1894.49	2014.79
III	210	1.2.1990	0.00	1675.01	1781.38	1894.49	2014.79
IV	210	1.2.1990	0.00	0.00	1781.38	1894.49	2014.79
V	210	1.4.1991	0.00	0.00	1781.38	1894.49	2014.79
VI	210	1.2.1992	0.00	0.00	0.00	1894.49	2014.79
Total Allowed			**3150.00**	**5025.04**	**8906.88**	**11366.96**	**12088.76**

44. It is noticed that in order dated 5.12.2016 in Petition No. 306/GT/2014 the petitioner has not claimed Special Allowance for the generating station during the period 2009-14. In this order, a total amount of ₹40537.64 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 for the period 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

45. Regulation 29 (1) (c) 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)

Unit Size (MW)	2014-15	2015-16	2016-17	2017-18	2018-19
210	23.90	25.40	27.00	28.70	30.51

46. Accordingly, the year-wise O&M expenses claimed by the petitioner in terms of the above said norms are allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
30114.00	32004.00	34020.00	36162.00	38442.60

Water Charges

47. 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"

48. The petitioner vide affidavit dated 23.6.2016 has submitted actual water consumption and water charges(per m^3) as follows:-

Sl No.	Year	Water Consumption (m^3)	Rate (₹per cubic feet)
1.	2013-14	36867357.00	5.50
2.	2014-15	27669687.00	5.50

49. The petitioner has claimed water charges for the period 2014-19 as follows:-

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2666.61	2835.94	3016.02	3207.54	3411.22

50. The petitioner has claimed water charges of ₹2666.61 lakh during the year 2014-15 and has escalated the same @ 6.35% as per the escalation rate specified by the Commission for the tariff period 2014-19. The petitioner has not provided any document /water supply agreement signed with the Department of Water resources specifying any escalation rate. The petitioner has not furnished any computation for the water charges of ₹2666.61 lakh in the year 2014-15 claimed based on water consumption of ₹27669687.00 m^3 and rate of water charges of ₹5.50/m^3.

51. The respondent, MPPMCL has submitted that O&M expenses claimed by the petitioner is inclusive of water charges which is grossly 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) of the 2014 Tariff Regulations.

52. We have considered the submission of the parties. 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 water consumption has been considered as per the actual consumption of 2014-15 as submitted by the petitioner and the water charges has been considered as per the notification of Ministry of Water Resources,

Government of MP, in absence of any justification provided by the petitioner for claiming water charges of ₹2666.61 lakh in 2014-15 and with escalation of 6.35% in subsequent years

53. Accordingly, water charges have been allowed without the annual escalation during 2014-19 as under:-

	2014-15	2015-16	2016-17	2017-18	2018-19
Water consumption projected for Stage I & II (m^3)	27669687.00	27669687.00	27669687.00	27669687.00	27669687.00
Rate or Water Charges (in ₹/ m^3)	5.50	5.50	5.50	5.50	5.50
Water charges allowed (in ₹ lakh)	1521.83	1521.83	1521.83	1521.83	1521.83

54. The petitioner is granted liberty to approach the Commission to claim water consumption charges during the true-up, based on the actual amount billed for the same.

55. 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	30114.00	32004.00	34020.00	36162.00	38442.60
O&M Expenses as allowed	30114.00	32004.00	34020.00	36162.00	38442.60
Water charges as Claimed	2666.61	2835.94	3016.02	3207.54	3411.22
Water charges as Allowed	1521.83	1521.83	1521.83	1521.83	1521.83
Total O&M Expenses as claimed (including Water charges)	32780.61	34839.94	37036.02	39369.54	41853.82
Total O&M Expenses as allowed(including Water charges)	**31635.83**	**33525.83**	**35541.83**	**37683.83**	**39964.43**

Capital spares

56. 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

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

Target Availability (%)	83.00
Heat Rate (kcal/kWh)	2450.00
Auxiliary Energy Consumption (%)	9.00
Specific Oil Consumption (ml/ kWh)	0.50

58. 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)

59. 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.

60. The respondent, MPPMCL has submitted that the petitioner has claimed Target Availability of 83% which is gross violation of Tariff Regulations, 2014 and proviso 36(A) of the 2014 Tariff Regulations provides that in view of 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. Further MPPPMCL has submitted that there

is no shortage of coal to petitioner as may observed form cumulative availability of the plant for the past 4 years as follows:-

Year	2012-13	2013-14	2014-15	2015-16
Availability	93.97%	94.00%	86.80%	91.58%

61. The respondent, MPPMCL further submitted that the petitioner is taking advantage of the above relaxation of Regulation without any basis and therefore it is requested that the petitioner may be directed to revise the target availability to 85% with retrospective effect. 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. It has also submitted that the fixed charges will be recovered at availability of 83% which shall be reviewed by the Commission after 3 years from 1.4.2014.

62. The petitioner has considered the Target Availability norm of 83% during 2014-19. However, 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)

63. The petitioner has claimed the heat rate as 2450.00 kCal/kWh. Regulation 36(C)(a) of the 2014 Tariff Regulations, provides Gross Station Heat Rate of 2450 kCal/kWh for existing coal based thermal generating stations of 210 MW sets. Hence, the heat rate considered by the petitioner is as per norms and is allowed.

Auxiliary Energy Consumption

64. The petitioner has claimed Auxiliary Energy Consumption at 9% 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 210 MW sets and additional 0.5% for thermal generating stations with induced draft cooling towers.

65. In view of the above, the Auxiliary Energy Consumption is considered as 8.5% for coal based generating stations of 210 MW sets and additional 0.5% for thermal generating stations with induced draft cooling towers as per norms specified in Regulation 36(E)(a) of the 2014 Tariff Regulations, the same is allowed for the purpose of tariff computations.

Specific Oil Consumption

66. 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

67. 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

68. 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	5518.35	5533.47	5518.35	5518.35	5518.35
1B	Cost of Coal for Generation for 30 days	11036.70	11066.94	11036.70	11036.70	11036.70
2	Cost of Main Secondary Fuel Oil for 2 months	410.84	411.96	410.84	410.84	410.84

69. The respondent, MPPMCL has submitted that the information of weighted average GCV of coal as fired have been provided. Which is in gross violation of the provisions contained in Regulation 30 (6) (b) of 2014 Tariff Regulations which provides that weighted average gross calorific value of primary fuel on as received basis has to be considered. It is further 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.

70. The issue of "as received" GCV for computation of energy charges was challenged by the petitioner 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.

71. 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."

72. Further, the petitioner has claimed Energy Charge Rate (ECR) of ₹158.014 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 Hydraulic 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:

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

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

73. In view of the above, the cost for fuel components in working capital have been computed at 83% NAPAF for the period 2014-15 to 2016-17 and 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)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Cost of Coal for stock– 15 days	3748.05	3748.05	3748.05	3838.36	3838.36
Cost of Coal for generation– 30 days	7496.10	7496.10	7496.10	7676.73	7676.73
Cost of secondary fuel oil – two months	401.17	402.27	401.17	410.84	410.84

74. Similarly, the 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	1260.00
Gross Station Heat Rate	kCal/kWh	2450.00
Aux. Energy Consumption	%	9.00%
Weighted average GCV of oil	kCal/lt.	9617.33
Weighted average GCV of Coal (As Billed)	kCal/kg	4726.63
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	52548.02
Weighted average price of Coal	₹/MT	1924.39
Rate of energy charge ex-bus	₹/kWh	1.123**

** To be calculated by the petitioner based on the adjustment formula*

*** To be revised as per the figures at Sr. No. 6*

75. 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

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

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
6556.12	6967.99	7407.20	7873.91	8370.76

77. 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, 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
6327.17	6705.17	7108.37	7536.77	7992.89

Receivables

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

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges (two months)	15603.52	15646.27	15603.52	15979.51	15979.51
Fixed Charges (two months)	8477.88	8838.43	9147.10	9466.56	9873.05
Total	**24081.40**	**24484.70**	**24750.62**	**25446.07**	**25852.56**

O&M Expenses

79. 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
2731.72	2903.33	3086.34	3280.79	3487.82

80. O&M expenses for 1 month allowed for the purpose of working capital are as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2636.32	2793.82	2961.82	3140.32	3330.37

Rate of interest on working capital

81. 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."

82. 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 and allowed as under:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal towards stock- 15 days	3748.05	3748.05	3748.05	3838.36	3838.36
Cost of coal towards generation- 30 days	7496.10	7496.10	7496.10	7676.73	7676.73
Cost of secondary fuel oil- 2 months	401.17	402.27	401.17	410.84	410.84
Maintenance Spares	6327.17	6705.17	7108.37	7536.77	7992.89
Receivables- 2 months	24436.97	24819.55	25071.22	25766.60	26170.32
O & M expenses- 1 Month	2636.32	2793.82	2961.82	3140.32	3330.37
Total Working Capital	**45045.77**	**45964.95**	**46786.72**	**48369.62**	**49419.51**
Rate of Interest	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	**6081.18**	**6205.27**	**6316.21**	**6529.90**	**6671.63**

83. 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	649.51	649.51	376.71	0.00	0.00
Interest on Loan	195.30	150.25	62.61	0.00	0.00
Return on Equity	14438.86	14508.81	14508.81	14508.81	14508.81
Interest on Working Capital	6081.18	6205.27	6316.21	6529.90	6671.63
O&M Expenses	31635.83	33525.83	35541.83	37683.83	39964.43
Compensation Allowance	840.00	630.00	210.00	0.00	0.00
Special allowance	3150.00	5025.04	8906.88	11366.96	12088.76
Total	**56990.68**	**60694.71**	**65923.06**	**70089.50**	**73233.64**

Month to Month Energy Charges

84. 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."

85. 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.

86. 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

87. 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 201-4-15 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.

88. 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.

89. Petition No. 338/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**