CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 373/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: 19th April, 2017

In the matter of

Approval of tariff of Feroze Gandhi Unchahar Thermal Power Station, Stage- III (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. Uttar Pradesh Power Corporation Ltd.
Shakti Bhawan, 14, Ashok Marg
Lucknow- 226001

2. Jaipur Vidyut Vitran Nigam Limited,
Vidyut Bhawan, Janpath,
Jaipur- 302005

3. Ajmer Vidyut Vitran Nigam Limited,
Old Power House, HathiBhata,
Jaipur Road, Ajmer

4. Jodhpur Vidyut Vitran Nigam Limited,
New Power House, Industrial Area, Jodhpur

5. Tata Power Delhi Distribution Limited,
Grid sub-station, Hudson Road,
Kingsway Camp, Delhi-110009

6. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi -110019.

7. BSES Yamuna Power Limited,
Shakti Kiran Building,
Karkardooma, Delhi-110092

8. Haryana Power Purchase Centre,
Shakti Bhawan, Sector -VI,
Panchkula, Haryana-134109

9. Punjab State Power Corporation Limited,
The Mall, Patiala-147001

10. Himachal Pradesh State Electricity Board Limited,
Kumar Housing Complex Building-II,
Vidyut Bhawan, Shimla-171004

11. Power Development Department,
Govt of J & K, Civil Secretariat,
Srinagar

12. Electricity Department, Chandigarh,
Union Territory of Chandigarh,
Addl. Office Building, Sector 9 D,
Chandigarh

13. Uttarakhand Power Corporation Limited,
Urja Bhavan, Kanwali Road,
Dehradun-248001 …..**Respondents**

Parties present:

Shri Ajay Dua, NTPC
Shri Bhupinder Kumar, NTPC
Shri Rajeev Choudhary, NTPC
Shri Sameer Aggarwal, NTPC
Shri Nishant Gupta, NTPC
Shri T. Vinodh Kumar, NTPC
Shri R.B.Sharma, Advocate, BRPL
Ms. Megha Bajpeyi, BRPL
Shri Sameer Singh, BYPL
Shri Nishant Grover, BYPL
Shri Abhishek Shrivastava, BYPL
Shri Manish Garg, UPPCL

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Feroze Gandhi Unchahar Thermal Power Station, Stage- III (210 MW) ("the generating station) for the period from 1.4.2014 to 31.3.2019 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").

2. The generating station comprises of one unit of 210 MW capacity with the date of commercial operation as 1.1.2007. The Commission vide order dated 25.5.2012 in Petition No. 279/2009 had determined the tariff of the generating station for the period from 1.4.2009 to 31.3.2014 taking into account the opening capital cost of ₹86399.48 lakh after adjustment of the un-discharged liabilities of ₹3742.22 lakh as on 1.4.2009. Against the said order dated

25.5.2012, the petitioner had filed Review Petition No. 17/2012 and the same was rejected by the Commission vide order dated 2.4.2013. Aggrieved thereby, the petitioner had filed Appeal No. 188/2013 before the Tribunal on various grounds. However, the Tribunal by judgment dated 11.4.2014 had dismissed the said appeal filed by the petitioner thereby affirming the order of the Commission. Thereafter, the petitioner had filed Petition No. 254/GT/2013 and Petition No. 321/GT/2014 for revision of tariff of generating station in terms of Regulation 6(1) of the 2009 Tariff Regulations for the period from 2009-14 after truing-up exercise based on actual additional capital expenditure incurred for the period 2009-14. The Commission vide order dated 27.6.2016 in Petition No. 321/GT/2014 revised the tariff of the generating station after truing-up of actual additional capital expenditure incurred for period 2009-14 considering the opening capital cost of ₹86399.48 lakh as on 1.4.2009 and closing capital cost of ₹87440.42 lakh as on 31.3.2014. Accordingly, closing capital cost and the annual fixed charges for the petitioner for the period 2009-14 determined by Commission vide order dated 27.6.2016 in Petition No. 321/GT/2014 is as under:

Annual Fixed Charges

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	4474.90	4503.86	4520.98	4526.51	4538.08
Interest on Loan	3973.89	3640.79	3390.23	2980.85	2579.35
Return on Equity	6102.13	6054.03	6000.57	6009.15	6154.28
Interest on Working Capital	1582.61	1587.56	1597.49	1600.16	1609.60
O&M Expenses	3822.00	4040.40	4271.40	4517.10	4775.40
Cost of secondary fuel oil	323.22	323.22	324.11	323.22	323.22
Total	**20278.75**	**20149.87**	**20104.77**	**19956.99**	**19979.92**

Capital Cost

(₹in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital cost	86399.49	86850.62	87040.90	87313.05	87290.25
Additional Capital Expenditure Allowed	451.14	190.27	272.16	(22.81)	150.18
Closing Capital cost	**86850.62**	**87040.90**	**87313.05**	**87290.25**	**87440.42**

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

Annual Fixed Charges

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4801.73	4855.94	4870.06	4870.06	4870.06
Interest on Loan	2439.25	2146.21	1845.71	1461.43	1051.18
Return on Equity	5647.81	5711.57	5728.17	5728.17	5728.17
Interest on Working Capital	2484.36	2505.29	2515.11	2528.74	2543.23
O&M Expenses	5084.38	5403.53	5743.94	6105.64	6490.73
Compensation Allowance	0.00	0.00	0.00	42.00	42.00
Total	**20457.52**	**20622.54**	**20702.98**	**20736.04**	**20725.37**

Capital Cost

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	91610.35	93153.35	93696.35	93696.35	93696.35
Add: Additional capital expenditure	1543.00	543.00	0.00	0.00	0.00
Closing Capital Cost	**93153.35**	**93696.35**	**93696.35**	**93696.35**	**93696.35**
Average Capital Cost	92381.85	93424.85	93696.35	93696.35	93696.35

4. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies of the same on the respondents. The respondents, UPPCL, BRPL and BYPL have filed their replies and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner, on prudence check, based on the submissions of the parties and the documents available on record, as stated in the subsequent paragraphs.

Capital Cost as on 1.4.2014

5. Regulation 9(3) of the 2014 Tariff Regulations provides for capital cost of an existing project 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."*

6. The petitioner has claimed opening capital cost of ₹91610.35 lakh as on 1.4.2014 after adjustment of an amount of ₹4052.72 lakh in the closing capital cost of ₹87557.63 lakh as on 31.3.2014 as approved by order dated 25.5.2012 in Petition No. 279/2009. The Commission

vide order dated 27.6.2016 in Petition No. 321/GT/2014 has approved the capital cost of ₹87440.42 lakh based on the actual capitalization for the period 2009-14. Accordingly, in terms of the above regulation, the opening capital cost of ₹87440.42 lakh as on 1.4.2014 has been considered for determination of tariff for the period 2014-19.

Additional Capital Expenditure

7. Clause 3 of Regulation 14 of 2014 Tariff Regulations provides as under:

> *"14.Additional Capitalization and De-capitalization: (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 50 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 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;*
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> *(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 insulators 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;*

(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 Modernization (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

8. The projected additional capital expenditure claimed by the petitioner for the period 2014-19 is as under:

(₹in lakh)

Sl. No.	**Head of work/ equipment**	**Regulation under which claimed**	**Projected additional capital expenditure**				
			2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
1.	Construction of 16 nos.'D' type quarters	14 (3) (i)	98.00	-	-	-	-
2.	Supply of electricity in 5 km area	14 (3) (ii)	1445.00	-	-	-	-
3.	Installation of CCTV cameras in plant premises	14 (3) (iii)	-	375.00	-	-	-
4.	Installation of roof top solar PV plant	54	-	168.00	-	-	-
	Total additional capital expenditure claimed		**1543.00**	**543.00**	**-**	**-**	**-**

9. The petitioner has claimed total projected additional capital expenditure of ₹2086.00 lakh during the period 2014-19 and the same has been examined in the subsequent paragraphs.

Construction of 16 Nos 'D' type quarters

10. The petitioner has claimed projected additional capital expenditure of ₹98.00 lakh in 2014-15 towards Construction of 'D' type quarters. In justification of the same, the petitioner has submitted that the Commission in order dated 25.5.2012 in Petition No. 279/2009 had allowed an expenditure of ₹350.00 lakh for the said work, out of which an amount of ₹268.17 lakh had been capitalized upto 31.3.2014. Accordingly, it has prayed that the balance amount of ₹98.00 may be allowed to be capitalized in the year 2014-15.

11. The respondent, BRPL has submitted that the petitioner had not completed the said work in terms of the order dated 25.5.2012 in Petition No. 279/2009. It has further submitted that the claims under Regulation 14 (3)(i) of the 2014 Tariff Regulations could be considered only if the expenditure is on account of liability to meet the award of arbitration or compliance of the order or decree of court of law. Accordingly, it has prayed that the claim does not fall within the scope of Regulation 14 (3)(i) and accordingly may be rejected. In response, the petitioner has submitted that the expenditure of ₹268.17 lakh had been capitalized during the period 2009-14 and only the balance work could not be completed in time due to poor mobilization from the contractor and the same will be completed and the expenditure of Rs 98.00 lakh will be capitalized during the period 2014-19.

12. The matter has been examined. It is noticed that the Commission in order dated 25.5.2012 in Petition No. 279/2009 had allowed total projected additional capital expenditure of ₹350.00 lakh for 2009-2014 for this work under Regulation 9 (2)(i) of the 2009 Tariff Regulations. It is also observed that the claim of the petitioner of actual additional capital expenditure of ₹99.61 lakh in 2013-14 was approved by the commission vide order dated 27.6.2016 in Petition No. 321/GT/2014 and had observed as under:

> *16. We have examined the matter. The Commission in order dated 25.5.2012 in Petition No. 279/2009 had allowed the projected additional capital expenditure for this work and had observed as under:*
>
> > *"27. From the justification submitted by the petitioner, it is observed that though the work was placed before the cut-off date, the delay in completion of the said work was only on account of poor mobilization of the agent of the contractor, thereby leading to court cases, arbitration between the contractor and agent and finally leading to out of court settlement. Hence, the delay in execution of the work is not attributable to the petitioner. Since mediation and settlement form part of arbitration process, the capitalization of the said expenditure during 2011-12 and 2012-13 is allowed, under Regulation 9(2)(i) of the 2009 Tariff Regulations."*
>
> *17. It is observed that the actual additional capital incurred for this work (`99.61 lakh) is lesser than the projected additional capital expenditure (`130.00 lakh) allowed under Regulation 9(2)(i) of the 2009 Tariff Regulations vide Commission's order dated 7.8.2015. In the above background and in view of the justification submitted by the petitioner, the actual additional capital expenditure of `99.61 lakh towards Construction of „D" type quarters in 2013-14 is allowed under Regulation 9(2)(i) of the 2009 Tariff Regulations. As regards the claim for balance expenditure during 2014-19, the same will be considered in accordance with law based on the justification submitted by the petitioner for the same."*

13. In this background and since the balance amount of ₹98.00 lakh has been approved by the Commission, the projected additional capital expenditure of ₹98.00 lakh is allowed in 2014-15 under Regulation 14(3)(i) of the 2014 Tariff Regulations

Supply of electricity in 5 km area

14. The petitioner has claimed additional capital expenditure of ₹1445.00 lakh in 2014-15 towards supply of electricity in 5 km radius area of the generating station 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 17.10.2012 had observed that the capitalization of the expenditure shall be considered at the time of actual expenditure being incurred by the petitioner. It has also submitted that the Ministry of Power, GOI had allowed the implementation this scheme in respect of 8 other generating stations of the petitioner including this generating station. Accordingly, it has prayed that the projected additional capital expenditure may be allowed.

15. The respondent, BRPL has submitted that the order dated 27.4.2010 had been withdrawn by GOI and hence there is no provision for additional capitalization for this scheme under the 2014 Tariff Regulations. It has also submitted that the petitioner can meet the expenditure on this count from the funds under Corporate Social Responsibility (CSR). Accordingly it has prayed that the in absence of any provision under the 2014 Tariff Regulations, the claim of the petitioner may be rejected.

16. In response, the petitioner has pointed out order dated 7.8.2015 in Petition No. 254/GT/2013 wherein the Commission had allowed the capitalization of expenditure in respect of implementation of 5 km scheme of electrification with a direction to have certificates/ documentary evidence containing details of the handing over and taking over the assets.

17. It has also submitted that an expenditure of ₹1211.47 lakh had been incurred in 2013-14 under this scheme and the balance work could not be capitalized as the handing over of assets to the local authorities was a time consuming activity. In view of above, the petitioner has

prayed that the contentions of the respondent may be rejected and capitalization of the said assets may be allowed.

18. We have examined the matter. It is observed that the Commission vide order dated 21.3.2017 in Petition No. 336/GT/2014 (tariff of Tanda TPS for the period 2014-19) had allowed the additional capital expenditure in similar matter and had observed as under:

> *"32. We have examined the matter. It is observed that the claim of the petitioner in Petition No. 329/GT/2014 was examined and the Commission in order dated 23.8.2016 had allowed Rs 775.70 lakh on actual basis out of the projected expenditure of Rs 14.10 crore and had observed as under:*
>
> > *"40. In line with the above decision and since the expenditure has been incurred and capitalized by the petitioner for creation of the infrastructure, we are of the view that the said expenditure of ₹775.70 lakh should be reimbursed by the beneficiaries in proportion to their share, in the remaining three years of the tariff period 2014-19, in equal monthly installments along with regular bills, with the weighted average rate of interest on loan applicable for the relevant years as indicated in the table under para 63 of this order till the date of capitalization of asset. As regards the claim for balance expenditure during 2014-19, the same will be considered in accordance with law based on the justification and the documentary evidence in support of the handing over the said entire assets to the state utility. The petitioner shall also ensure the security and safety of assets till the same is formally handed over to the State utility so that the said assets capitalized are neither removed nor destroyed."*
>
> *33. It is evident from the above that the claim of the petitioner for balance expenditure during the period 2014-19 shall be considered by the Commission after handing over the entire assets to the State utility and producing documentary evidence in this regard. As the petitioner has not furnished documents which suggest that the entire assets have been handed over to State utility, we are not inclined to allow the projected additional capital expenditure of Rs 697.00 lakh. However, liberty is granted to the petitioner to claim the said expenditure with proper justification and documentary evidence in support of handing over the assets to State utility at the time of truing- up of the tariff in terms of the Regulation 8 of the 2014 Tariff Regulations."*

19. In the present case, the petitioner has not formally handed over the assets to the State utility. In this background and in line with the above decision, we are not inclined to allow the expenditure of ₹1445.00 lakh in 2014-15 for implementation of scheme for supply of electricity within 5 km radius of the generating station under Regulation 14 (3) (ii) of the 2014 Tariff Regulations. However, liberty is granted to the petitioner to claim the said expenditure with documentary evidence in support of handing over the assets to State utility at the time of truing-up of the tariff of the generating station in terms of Regulation 8 of the 2014 Tariff Regulations.

Installation of CCTV cameras in plant premises

20. The petitioner has claimed additional capital expenditure of ₹375.00 lakh in 2015-16 towards Installation of CCTV cameras in the generating station under Regulation 14 (3) (iii) of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that the expenditure has been proposed to improve the safety and security of the plant in terms of the recommendation by CISF on account of enhanced threat perception to the generating station. Accordingly, the petitioner has prayed that the claim under this head may be allowed.

21. The respondent, UPPCL has submitted that the report on the said work had been submitted by the security agency on 2.4.2010 and the expenditure has been claimed by the petitioner in 2015-16. Accordingly, it has prayed that the Commission may assess the delay by the petitioner in implementing the said recommendations. Similar submissions have been made by the respondent, BYPL. In response, the petitioner has submitted that expenditure on CCTV cameras is essential for compliance of the statutory requirements for safety and security of the generating station and the same is permissible under 2014 Tariff Regulations. It has further submitted that the implementation of the recommendations of CISF has been done in phased manner and capitalization of some of the recommended schemes like X-ray baggage inspection system has been done during the period 2009-14. Accordingly, it has prayed that the contentions of the respondent may be rejected and capitalization of the said assets may be allowed.

22. We have examined the matter. Regulation 14(3)(iii) of the 2014 Tariff Regulations provides for grant of expenditure towards security or safety of the generating station based on the advice or direction of statutory authorities responsible for national security/ internal security. Similar claim of the petitioner was considered by the Commission in order dated 16.2.2017 in Petition No. 293/GT/2014 (tariff of Talcher STPS-II for the period 2014-19). The relevant portion of the said order is extracted as under:

> *"30. We have examined the matter. It is noticed that Regulation 14(3)(iii) of the 2014 Tariff Regulations provides for considering the expenditure for security or safety of the plant based on the advice or direction of statutory authorities responsible for national security/ internal security.*

Keeping in view the present security scenario of the country and in order to modernize the security system and installation of modern electronic gadget, Ministry of Home Affairs, GOI vide letter dated 3.12.2011 has directed for installation of IP security cameras at various locations of the generating station and the installation of cameras are for internal security and safety of the plant from outside agencies/ elements. In this background, the additional capital expenditure of `300.00 lakh in 2015-16 is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations."

In line with the above decision, the additional capital expenditure of ₹375.00 lakh in 2015-16 is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations.

Installation of Roof top Solar PV plant

23. The petitioner has claimed additional capital expenditure of ₹168.00 lakh in 2015-16 towards Installation of Roof top Solar PV plant at the generating station in exercise of Power to relax under Regulation 54 of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that Installation of Roof top Solar PV plant will help in the reduction of Green House Gases and thereby reduce emissions which will increase availability of Green energy. Accordingly, it has prayed that the expenditure may be allowed.

24. The respondent, UPPCL has submitted that the petitioner has not furnished the benefits like fiscal incentive of accelerated depreciation for tax computation, revenue from sale of energy, carbon credit etc. accruing from installation of roof top solar PV plant and therefore the claim of the petitioner may be disallowed. Similar submission has been made by the respondent, BYPL and has prayed that the petitioner may be directed to submit detailed DPR along with the financial justification of the said expenditure. The respondent, BRPL has prayed that the claim of the petitioner may be disallowed as there is no provision to allow such expenditures under the 2014 Tariff Regulations. It has also submitted that the claim of the petitioner in exercise of 'Power to relax' under Regulation 54 can be invoked only for technical and procedural considerations and not for commercial and financial considerations.

25. The matter has been examined. It is noticed that the petitioner has not submitted the benefits accrue to the beneficiaries by installation of Roof top Solar PV plant at the generating station. Moreover, the said assets do not form an essential part or is a component used for operation of the generating station. Accordingly, in the absence of any justification to support

the claim for the said expenditure, the projected expenditure of ₹168.00 lakh claimed by the petitioner in 2015-16 is not allowed.

26. Based on the above, the projected additional capital expenditure allowed for the period 2014-19 are as under:

(₹ in lakh)

Head of Work/ Equipment	2014-15	2015-16	2016- 17	2017-18	2018 - 19
Construction of 16 Nos 'D' type quarters	98.00	0.00	0.00	0.00	0.00
Installation of CCTV cameras in plant premises	0.00	375.00	0.00	0.00	0.00
Total	**98.00**	**375.00**	**0.00**	**0.00**	**0.00**

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	87440.42	87538.42	87913.42	87913.42	87913.42
Admitted Projected additional capital expenditure	98.00	375.00	0.00	0.00	0.00
Closing capital cost	**87538.42**	**87913.42**	**87913.42**	**87913.42**	**87913.42**

Debt–Equity Ratio

28. 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:equityration 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.

29. Accordingly, the gross loan and equity amounting to ₹61208.30 lakh and ₹26232.13 lakh respectively as on 31.3.2014 vide order dated 27.6.2016 in Petition 321/GT/2014 has been considered as gross loan and equity as on 1.4.2014. Further the additional expenditure approved above has been allocated in debt-equity ratio of 70:30.

Return on Equity

30. 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.

31. 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."

32. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%. However, it is observed that in terms of the directions of the Commission in Petition No. 290/GT/2014 (tariff of Singrauli TPS for 2014-19), the petitioner vide affidavit dated 23.9.2015 has worked out the effective tax rate as 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of NTPC petitions, the beneficiaries had raised an issue on the computation of effective tax rate. This Issue not being 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 affidavit dated 8.1.2016 in Petition No. 280/GT/2014 (Farakka STPS Stage-III for 2014-19) had filed Auditor's Certificate regarding deposit of advance tax on generation business for 2014-15 as well as Income Tax return for the 2014-15 and advance tax for 2015-16. We have perused the documents. Though above regulation has specified the computation of effective tax rate on the basis of tax paid, we deem it proper to allow grossing up on MAT rate considering

the fact that the petition is getting disposed of during 2016- 17. Accordingly, the effective tax rate (MAT) of 20.961% has been considered for 2014-15 and 21.342% for 2015-16 onwards up to 2018-19 for the purpose of grossing up of the 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. 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	26232.13	26261.53	26374.03	26374.03	26374.03
Addition of Equity due to Additional capital expenditure	29.40	112.50	0.00	0.00	0.00
Normative Equity - Closing	26261.53	26374.03	26374.03	26374.03	26374.03
Average Normative Equity	26246.83	26317.78	26374.03	26374.03	26374.03
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax Rate for respective years	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	**5147.00**	**5185.92**	**5197.00**	**5197.00**	**5197.00**

Interest on Loan

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

> *"26. Interest on loan capital: (1)The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.*
>
> *(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.*
>
> *(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset.*
>
> *(4) Notwithstanding any moratorium period availed by the generating company orthe transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*
>
> *(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:*
>
> *Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:*
>
> *Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.*
>
> *(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

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

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

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

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

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

(a) The gross normative loan amounting to ₹61208.30 lakh has been considered as on 1.4.2014

(b) Cumulative repayment of loan of ₹31871.22 lakh as on 31.3.2014 as considered in order dated 27.6.2016 in Petition No. 321/GT/2014 has been considered as on 1.4.2014.

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

(d) Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19. Further proportionate adjustment has been made to the repayments corresponding to discharges and reversals of liabilities considered during the respective years on account of cumulative repayment adjusted as on 1.4.2014.

(e) In line with the provisions of the regulation stated above 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 instant 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 subject to truing-up.

35. 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	61208.30	61276.90	61539.40	61539.40	61539.40
Cumulative repayment of loan upto previous year / period	31871.22	36419.15	40979.38	45549.36	50119.33
Net Loan Opening	29337.08	24857.75	20560.02	15990.04	11420.06
Addition due to Additional capital expenditure	68.60	262.50	0.00	0.00	0.00
Repayment of loan during the year	4547.94	4560.23	4569.98	4569.98	4569.98
Less: Repayment adjustment on account of de-caps	0.00	0.00	0.00	0.00	0.00
Add: Repayment adjustment on discharges corresponding to un-discharged liabilities deducted as on 01.04.2014	0.00	0.00	0.00	0.00	0.00
Net Repayment	4547.94	4560.23	4569.98	4569.98	4569.98
Net Loan Closing	24857.75	20560.02	15990.04	11420.06	6850.09
Average Loan	27097.41	22708.88	18275.03	13705.05	9135.08
Weighted Average Rate of Interest on Loan	8.2612%	8.4404%	8.8929%	9.2002%	9.5434%
Interest on Loan	**2238.56**	**1916.73**	**1625.17**	**1260.89**	**871.80**

Depreciation

36. Regulation 27of 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."

37. The cumulative depreciation as on 31.3.2014 vide order dated 27.06.2016 in Petition 321/GT/2014 is ₹31968.59 lakh. The petitioner has claimed weighted average rate of depreciation of 5.20% for the period 2014-19 and the same has been considered for calculating depreciation for the period 2014-19 subject to truing-up. The petitioner is however directed to furnish information regarding un-recovered depreciation at the time of truing-up of tariff of the generating station. Accordingly, depreciation has been computed as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Average Capital Cost	87489.42	87725.92	87,913.42	87913.42	87913.42
Depreciable value (ex. land)@ 90%	78740.48	78953.33	79122.08	79122.08	79122.08
Rate of Depreciation	5.20%	5.20%	5.20%	5.20%	5.20%
Balance depreciable value	46771.89	42436.80	38045.32	33475.35	28905.37
Depreciation (annualized)	**4547.94**	**4560.23**	**4569.98**	**4569.98**	**4569.98**
Cumulative depreciation at the end	36516.53	41076.76	45646.73	50216.71	54786.69
Less: Cumulative Depreciation adjustment on a/c 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)	**36516.53**	**41076.76**	**45646.73**	**50216.71**	**54786.69**

Operation & Maintenance expenses

38. Regulation 29(1) (a) of the 2014 Tariff Regulations provides O&M expense norms for coal based generating stations of 200 MW / 210 / 250 MW as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
23.90	25.40	27.00	28.70	30.51

37. 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 5th& 6th units	0.90
	Additional 7th&more units	0.85
300/330/350 MW	Additional 4th&5th units	0.90
	Additional 6th&more units	0.85
500 MW and above	Additional 3rd&4th units	0.90
	Additional 5th&more units	0.85

38. 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
5019.00	5334.00	5670.00	6027.00	6407.10

39. As the Unit-V of the generating station has achieved COD on 1.1.2007 which is prior to the period 2009-14, the multiplication factor of 0.9% 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. Accordingly, the normative O&M expenses claimed by the petitioner in terms of the 2014 Tariff Regulations are allowed.

Water Charges

40. 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"

41. In terms of the above regulations, 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.

42. The petitioner vide affidavit dated 14.8.2014in Form-3A of the petition has claimed the following water charges.

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
65.38	69.53	73.94	78.64	83.63

43. 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 has been furnished as under:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed Cycle
Consumption of water	10.896 Cusec
Water Charges Rate	600000 ₹./cusec
Total Water Charges	₹65.376 lakh.

44. 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 24.5.2016 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 response, the petitioner vide affidavit dated 23.6.2016 had submitted that the contracted quantity of water and allocated quantity of water for the generating station for all three stages together is 105 cusecs (cubic foot/sec). The water for the entire generating station has been worked out on the basis of running hours of the pumps in terms of the MOU with the U.P. Irrigation department and payments have been made by the petitioner on the basis of total consumption of water. As water facility is common to all three stages, the distribution of consumptive water among stages has been done on the basis of

stage capacity i.e. 2:2:1 for stage-I, stage-II and stage-III respectively. The actual water consumption for the last 5 years i.e for 2009-14 and the corresponding charges payable is as under:

	Total water consumption (cusec)	Pro-rata water consumption (cusec)	Royalty charges payable for generating station		Water consumption charges payable for generating station *		Total canal maintenance & Misc. charges (Rs. lakh)	Pra-rata Maintenance charges (Rs. Lakh)
			Rate (Rs. lakh /cusec)	Amount (Rs. lakh)	Rate Rs./1000 Cuft.)	Amount (Rs. lakh)		
1	2	3 = (2)*(1/5)	4	(5)=(4)*(3)	6	7=(6)*(3)*31536/ 100000	8	9= (8)*(1/5)
2009-10	49.22	9.884	1.5	14.77	3.12	9.69	38.62	7.72
2010-11	49.82	9.964	1.5	14.95	3.12	9.80	85.81	17.16
2011-12	49.92	9.984	1.5/6	47.54	3.12 /12.48	31.18	108.45	21.69
2012-13	50.53	10.106	6.0	60.64	12.48	39.77	55.89	11.18
2013-14	50.84	10.168	6.0	61.01	12.48	40.02	53.81	10.76

**Water consumption charges for the period 2009-14 has not been paid by the petitioner as the same has not been yet billed by U.P Irrigation Department and the same shall be paid when they are billed*

Projection for Water Charge Rate for 2014-19

45. As per provisions of Regulation 29(2) of the 2014 Tariff Regulations, Water charges are to be allowed separately. It is observed from the above table that water charges in 2013-14 works out to ₹111.79 lakh (61.01+ 40.02+ 10.76). However, the petitioner has furnished actual water charges amounting to ₹65.376 lakh in 2013-14. It has further submitted that the payment of water charges is based on actual consumption and not on the basis of allocation. It has also submitted that U.P. Irrigation Department has increased the water charges fourfold from ₹3.12 per 1000 cu ft to ₹12.48 per 1000 cu ft as well as Royalty charges from ₹1.50 lakh/cusec/yr to ₹6.00 lakh/cusec/yr w.e.f. 15.7.2011. However, water charges for the period 2009-14 has not been paid by the petitioner as the same has not yet been billed by U.P. Irrigation Department, and is payable as and when billed. The petitioner vide affidavit dated 23.6.2016 has claimed water charges for the year 2013-14 based on the revised rate of ₹111.79 lakh including Royalty, etc. Since the water charges rate has been revised by U.P. Irrigation Department, it would be

prudent to consider water charges for the period 2014-19 based on revised rate instead of capacity water charges claimed for ₹65.38 lakh in the year 2013-14, based on old rates.

46. In this backdrop and in order to reduce the liability of the beneficiaries for paying enhanced charges on actual basis, the actual water charges of ₹111.79 lakh (furnished vide affidavit dated 23.6.2016) as against water charges of ₹65.38 lakh (claimed in 2013-14 in affidavit dated 14.8.2014) is allowed as projected water charges for the period 2014-19, without any escalation, subject to truing –up, as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
111.79	111.79	111.79	111.79	111.79

47. Accordingly, the total O&M expenses including water charges as claimed by the petitioner and as 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 (a)	5019.00	5334.00	5670.00	6027.00	6407.10
O&M Expenses as allowed (b)	**5019.00**	**5334.00**	**5670.00**	**6027.00**	**6407.10**
Water charges as claimed (c)	65.38	69.53	73.94	78.64	83.63
Water charges as allowed (d)	**111.79**	**111.79**	**111.79**	**111.79**	**111.79**
Total O&M expenses as claimed (a + c)	5084.38	5403.53	5743.94	6105.64	6490.73
Total O&M expenses as allowed (b + d)	**5130.79**	**5445.79**	**5781.79**	**6138.79**	**6518.89**

Enhancement of O&M expenses

48. The petitioner has submitted that the salary / wage revision of the employees of the petitioner is due with effect from 1.1.2017. The O&M expenses claimed by the petitioner is based on the 2014 Tariff Regulations. The escalation of 6.35% provided in the O&M has not covered the enhanced employee cost w.e.f 1.1.2017. The petitioner, therefore, craves liberty of the Commission to seek enhancement in the O&M expenses with effect from 1.1.2017 towards the increased salary on account of salary revision due from 1.1.2017, based on the actual payments whenever paid by it. The matter has been examined. The Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as under:

> *"29.26. Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the*

Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers".

49. Accordingly, the prayer of the petitioner for enhancement of O&M expenses, if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard.

Capital spares

50. 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, shall be considered on merits, at the time of truing-up of tariff, after prudence check.

Operational Norms

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

Target Availability	83.00
Heat Rate (kcal/kwh)	2450.00
Auxiliary power consumption %	9.00
Specific Oil Consumption (ml/kwh)	0.50

52. The above operational norms as per Regulation 36 of the 2014 Tariff Regulations considered for tariff calculations by the petitioner are in order. However, NAPAF of 83% shall be reviewed based on actual feedback after 3 years of operation.

Normative Annual Plant Availability Factor

53. 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."

54. The petitioner has considered the Target availability of 83% during the period 2014-19. The Commission due to shortage of domestic coal supply has relaxed target availability norm to 83% for first 3 years from 1.4.2014 and the same shall be reviewed after 3 years. Accordingly, in terms of the above regulation, NAPAF of 83% is allowed for the period 2014-15 to 2016-17 and 85% for the period 2017-18 to 2018-19.

Heat Rate (kcal/kwh)

55. Regulation 36(C)(a) of the 2014 Tariff Regulations provides the Gross Station Heat Rate of 2450 kCal/kWh for 200 /210/250 MW sets whose COD's were before 1.4.2009. The COD of the generating station is 1.1.2007 which comprises of one unit of 210 MW. Accordingly, the Heat rate of 2450 kCal/kWh considered by the petitioner is in order and is allowed.

Auxiliary Power Consumption

56. Regulation 36(E)(a) of the 2014 Tariff Regulations provides Auxiliary Energy Consumption of 8.5% for 200 MW series for coal based Generating stations with Natural Draft cooling tower or without cooling tower provided further that generating stations with induced draft cooling shall be further increased by 0.5%. The generating station comprises of five units of 200 MW and two Units of 500 MW each. Accordingly, Auxiliary Energy Consumption of 9.0% (8.5 + 0.5) considered by the petitioner is in order and is allowed.

Specific Oil Consumption

57. Regulation 36(D)(a) of the 2014 Tariff Regulations provides for 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

58. Sub-section (a) 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 towards stock for 15 days for pit-head generating stations and 30 days for non-pit-head generating station for generation corresponding to the normative annual plant availability factor or the maximum coal stock storage capacity whichever is lower.

ii) Cost of coal for 30 days for generating corresponding to the normative annual plant availability factor.

iii) Cost of secondary fuel oil for two month for generating 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 charge and energy charge for sale of electricity calculated on normative plant availability factor; and

vi) Operation and maintenance expenses for one month."

Fuel Components in working capital

59. The petitioner has claimed cost for fuel component 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:

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Cost of Coal for stock -1 months	3352.63	3361.81	3352.63	3352.63	3352.63
Cost of Coal for generation -1 months	3352.63	3361.81	3352.63	3352.63	3352.63
Cost of Secondary fuel oil - 2 months	70.99	71.18	70.99	70.99	70.99

60. However, in terms of the 2014 Tariff Regulations, the fuel components and ECR is to be worked out and are to be allowed based on the price and GCV of primary fuel on 'as received' basis for the preceding three months i.e. January'2014, February'2014 and March, 2014 respectively. Since, the GCV of coal on 'as received' basis is not available with the petitioner, the Commission vide ROP of the hearing on 24.5.2016 directed the petitioner as under:

(a) *To furnish details of 'as billed' GCV of coal prior to washing of coal for the months of January, 2014 February, 2014 and March, 2014.*

(b) In case GCV of coal on 'as billed' by the coal company is not available, invoice of coal company for the above months shall be submitted.

61. In response to the ROP of the hearing on 24.5.2016, the petitioner vide affidavit dated 23.6.2016 had submitted that "as billed" GCV of washed coal has not been indicated by the coal company in the invoices and is not available.

62. The Commission while determining the tariff of various generating station of the petitioner namely Simhadri Stage-I (order dated 27.6.2016 in Petition No. 270/GT/2014), Vindhyachal STPS Stage-II (order dated 6.2.2017 in Petition No. 327/GT/2014), Mauda Stage-I (order dated 11.2.2017 in Petition No. 328/GT/2014), Ramagundam Stage-I & II (order dated 24.1.2017 in Petition No. 292/GT/2014), Kahalgaon stage-II (order dated 21.1.2017 in Petition No. 283/GT/2014), Rihand STPS Stage-III (order dated 6.2.2017 in Petition No. 372/GT/2014) etc., for the period 2014-19 had allowed fuel components and 2 months of Energy Charges in working capital considering the GCV of coal on 'as billed' basis and had allowed the adjustment formulae for total moisture as under:

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

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

63. In the absence of GCV of coal on 'as billed' as well as on 'as received' basis for the preceding 3 months i.e. January, 2014, February, 2014 and March, 2014, the computation of fuel component and 2 months Energy charges in working capital has not been considered for the period 2014-19.

64. The cost for secondary fuel oil in working capital have been computed at 83% NAPAF for the year 2014-15, 2015-16 and 2016-17 and at 85% NAPAF for the year 2017-18 and 2018-19 and based on GCV of secondary fuel oil and price of secondary fuel oil for the preceding three months from January 2014 to march 2014 as given below:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
70.99	71.18	70.99	72.70	72.70

Energy Charge Rate (ECR)

65. The petitioner has claimed an energy charge rate (ECR) of 293.545 Paise/kWh (which includes the 3.065 Paise/kWh corresponding to the rate of energy charge from Secondary fuel oil) based on the weighted average price, GCV of coal (as fired basis) & Oil procured and burnt for the preceding three months. As discussed in para 59 to para 63 above, the energy charge rate (ECR) corresponding to coal is not computed by the Commission and the energy charge rate (ECR) corresponding to the rate of energy charge from Secondary fuel oil only based on operational norms specified in 2014 Regulations and on “As Billed” GCV of secondary fuel oil for preceding 3 months i.e. March to January 2014, is worked out as given below may be considered for allowing 2 months Energy Charge corresponding to the Secondary fuel oil in Working capital:

Description	Unit	2014-19
Capacity	MW	210
Gross Station Heat Rate	Kcal/kWh	2450
Aux. Energy Consumption	%	9.00
Weighted average GCV of oil (As fired)	Kcal/lit	9990
Weighted average price of oil	Rs/KL	55789.96
Rate of energy charge ex-bus corresponding to secondary fuel oil	Paise/kWh	3.065

Maintenance Spares

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

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1016.88	1080.71	1148.79	1221.13	1298.15

67. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the O & M expenses as specified in Regulation 29. In terms of Regulation 29(2) of the 2014 Tariff Regulations and in line with Commission’s order dated 6.10.2015 in Petition No. 186/GT/2014 (Sugen power plant), the maintenance spares @ 20% of O & M expenses allowed is as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1026.16	1089.16	1156.36	1227.76	1303.78

Receivables

68. 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 - for two months	71.79	71.98	71.79	73.52	73.52
Fixed Charges – for two months	2946.26	2955.89	2969.20	2970.37	2971.31
Total	3018.05	3027.87	3040.99	3043.89	3044.83

O & M Expenses (1 month)

69. O&M expenses for 1 month claimed by the petitioner for the purpose of working capital in Form-13 B is as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
423.70	450.29	478.66	508.80	540.89

70. Regulation 28 (a) (vi) of the 2014 Tariff Regulations provides for O & M expenses for one month for coal based generating station. Accordingly, O&M expenses for 1 month is allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
427.57	453.82	481.82	511.57	543.24

Rate of interest on working capital

71. 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."*

72. In terms of the above regulations, SBI PLR of 13.50% has been considered for the purpose of calculating interest on working capital. Accordingly, Interest on working capital has been computed as under:

(₹ *in lakh*)

	2014-15	2015-16	2016-17	2017-18	2018-19
Fuel Cost -	0.00	0.00	0.00	0.00	0.00
Liquid Fuel Cost -	70.99	71.18	70.99	72.70	72.70
O & M expenses - 1 months	427.57	453.82	481.82	511.57	543.24
Maintenance Spares	1026.16	1089.16	1156.36	1227.76	1303.78
Receivables - 2 months	3018.05	3027.87	3040.99	3043.89	3044.83
Total Working Capital	**4542.76**	**4642.03**	**4750.15**	**4855.91**	**4964.55**
Rate of interest	13.5000%	13.5000%	13.5000%	13.5000%	13.5000%
Interest on Working Capital	**613.27**	**626.67**	**641.27**	**655.55**	**670.21**

Compensation Allowance

73. 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

74. The petitioner has claimed unit-wise Compensation allowance 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
0.00	0.00	0.00	42.00	42.00

75. In terms of the above regulation, the unit of the generating station is in commercial operation for more than 10 years from their respective date of CODs and accordingly, the Compensation allowance worked out as under:

(₹ *in lakh*)

Sl.No.	Description	Unit -I
1	Capacity in MW	210
2	COD	1.1.2007
3	Useful life as on 1.4.2014	7.25
4	Actual useful life after	
	a) 10 years	1.4.2017
	b) 15 years	1.3.2022
	c) 20 years	1.3.2027

	d) 25 years	1.3.2032
5	Compensation Allowance (unit-wise)	
	2014-15	0.00
	2015-16	0.00
	2016-17	0.00
	2017-18	42.00
	2018-19	42.00
	Total	84.00

76. Accordingly, the Compensation allowance of ₹84.00 lakh for Unit-I of the generating station during the period 2014-19 is allowed.

Annual Fixed Charges

77. Accordingly, annual fixed charges approved for the generating station for the period from 2014-19 is summarized as under:

(₹ *in lakh*)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4547.94	4560.23	4569.98	4569.98	4569.98
Interest on Loan	2238.56	1916.73	1625.17	1260.89	871.80
Return on Equity	5147.00	5185.92	5197.00	5197.00	5197.00
Interest on Working Capital	613.27	626.67	641.27	655.55	670.21
O&M Expenses	5130.79	5445.79	5781.79	6138.79	6518.89
Compensation Allowance	0.00	0.00	0.00	42.00	42.00
Total	**17677.56**	**17735.34**	**17815.21**	**17864.21**	**17869.88**

Note: All figures are on annualised basis. All figures under each head have been rounded. The figure in total column in each year is also rounded. As such, the sum of individual items may not be equal to the arithmetic total of the column

Month to Month Energy Charges

78. The petitioner shall determine month to month Energy Charges Rate (ECR) in Rupees per kWh to three decimal places on ex-power plant 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 = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.
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"

79. 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 read with Commission's order dated 25.1.2016 in Petition No. 283/GT/2014.

80. The Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014 (TPDDL v NTPC & anr) had directed as under:

> "*The respondents shall introduce help desk to attend to the queries and concerns of the beneficiaries with regard to the energy charges. The contentious issues regarding the energy charges should be sorted out with the beneficiaries at the senior management level, preferably at the level of Executive Directors.*"

Accordingly, in line with the above decision, help desk shall be introduced by the petitioner and contentious issues if any, which arise in respect of energy charges for this generating station shall be sorted out with the beneficiaries at the Senior Management level.

Application Fee and Publication Expenses

81. 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 of ₹ 924000/- each for the year 2014-15, 2015-16 and 2016-17 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, we direct that the petitioner shall be entitled to recover *pro rata,* the filing fees and the expenses of incurred on publication of notices directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2017-19 shall be recovered *pro rata* after deposit of the same and production of documentary proof.

82. 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.

83. Petition No. 373/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**