CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 257/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 Hearing: 05.01.2016
Date of Order: 02.08.2016

IN THE MATTER OF

Determination of tariff of Bhilai Expansion Power Plant (500 MW) for the period from 1.4.2014 to 31.3.2019

AND

IN THE MATTER OF

NTPC-SAIL Power Company Ltd,
NBCC Tower 4th floor
15, Bikaji Cama Palace,
New Delhi – 110001 …**Petitioner**

Vs

1. DNH Power Distribution Corporation Ltd,
(*erstwhile Electricity Department, UT of Dadra & Nagar Haveli*)
First Floor, Vidhyut Bhavan, Opp Secretariat,
Silvassa-396230

2. Electricity Department,
UT of Daman & Diu, OIDC Building, Somnath,
Nani Daman-396210

3. Chhattisgarh State Power Distribution Company Ltd,
Dangania, P.O. Sunder Nagar,
Raipur-492013

4. Steel Authority of India Ltd (SAIL),
Ispat Bhavan, Lodhi Road,
New Delhi -110003 ….**Respondents**

Parties present:

Ms. Anushree Bardhan, Advocate, NTPC-SAILl
Ms. Poorva Saigal, Advocate, NTPC-SAIL
Shri D.G Salpekar, NTPC-SAIL
Ms. Shweta Agarwal, NTPC-SAIL
Shri Abhinav Jindal, NTPC-SAIL

ORDER

This petition has been filed by the petitioner, NTPC-SAIL Power Company Private Limited for determination of tariff of Bhilai Power Plant (2 x 500 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 petitioner is a joint venture company of NTPC Ltd and Steel Authority of India Ltd (SAIL) having equal equity participation in the ratio of 50:50. The petitioner has acquired certain captive power plants owned by SAIL, which includes the captive power plant at Bhilai with capacity of 74 MW (2x30 MW + 1 x 14 MW), which is expanded by addition of 2 units of 250 MW each. The power generated from the generating station will be consumed to the extent of 51% for captive requirements of SAIL and the balance power is to be supplied to the respondents 1 to 3 in terms of the Power Purchase Agreements entered into between them.

3. The Commission vide order dated 29.7.2010 in Petition No.308/2009 had approved the tariff of the generating station for the period 21.10.2009 to 31.3.2014 in accordance with the provisions of the 2009 Tariff Regulations. Subsequently, the Commission vide order dated 29.12.2015 in Petition No. 220/GT/2013 and Petition No. 132/GT/2014 had revised the tariff of the generating station for the period 21.10.2009 to 31.3.2014 after truing-up in terms of the Regulation 6(1) of the 2009 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner are as under:

Capital Cost

(₹ in lakh)

	2009-10		2010-11	2011-12	2012-13	2013-14
	22.4.2009 to 20.10.2009	**21.10.2009 to 31.3.2010**				
Opening Capital Cost	152475.30	224173.27	224502.03	243660.74	268187.41	275188.64
Add: Additional Capital Expenditure	0.00	328.77	19158.71	24526.67	7001.23	732.17
Closing Capital Cost	**152475.30**	**224502.03**	**243660.74**	**268187.41**	**275188.64**	**275920.81**
Average Capital Cost	**152475.30**	**224337.65**	**234081.39**	**255924.08**	**271688.03**	**275554.73**

Annual Fixed Charges

(₹in lakh)

	2009-10		2010-11	2011-12	2012-13	2013-14
	22.4.2009 to 20.10.2009	**21.10.2009 to 31.3.2010**				
Depreciation	8003.67	11753.54	12272.67	13408.46	14158.06	14301.09
Interest on Loan	9330.12	12919.66	13490.01	13767.20	13711.71	12867.41
Return on Equity	6385.99	12010.14	13015.91	14298.42	15214.80	18709.63
Interest on Working Capital	1505.35	3188.27	3262.28	3355.82	3418.23	3512.33
O&M Expenses	4635.45	8895.45	9436.95	10009.66	10618.66	11259.02
Cost of Secondary Fuel Oil	337.03	984.86	984.86	987.55	984.86	984.86
Total	**30197.62**	**49751.91**	**52462.67**	**55827.12**	**58106.32**	**61634.34**

4. The petitioner vide affidavit dated 18.8.2014 has sought approval of tariff in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

Capital Cost

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	275763.15	276859.42	279660.58	280144.58	280769.58
Add: Additional Capital Expenditure	1096.27	2801.16	484.00	625.00	340.00
Closing Capital Cost	**276859.42**	**279660.58**	**280144.58**	**280769.58**	**281109.58**
Average Capital Cost	276311.29	278260.00	279902.58	280457.08	280939.58

Annual Fixed Charges

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	14175	14275	14359	14387	14412
Interest on Loan	11234	10067	8879	7631	6446
Return on Equity	16256	16370	16467	16500	16528
Interest on Working Capital	4693	4733	4760	4793	4832
O&M Expenses	13415	14282	15206	16187	17231
Total	**59773**	**59728**	**59670**	**59498**	**59449**

5. In compliance with the directions of the Commission, the petitioner has filed additional information with copies to the respondents. The petition was heard on 5.1.2016 and the Commission reserved its orders. Reply to the petition has been filed by the respondent Nos. 1 to 3 and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claims of the petitioner, on prudence check, based on the submissions of the parties and the documents available on records as stated 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 modernization as admitted by this Commission in accordance with Regulation 15."

7. The annual fixed charges claimed in the petition are based on opening capital cost of ₹275763.15 lakh as against the capital cost of ₹275920.81 lakh admitted as on 31.3.2014 in order dated 29.12.2015 in Petition No. 220/GT/2013 with 132/GT/2014.The Commission vide order dated 29.12.2015 in Petition Nos. 220/GT/2013 and 132/GT/2014 had admitted the closing capital cost of ₹275920.81lakh crore as on 31.3.2014. The closing capital cost as on 31.3.2014 as admitted by the Commission vide order dated 29.12.2015 in Petition Nos. 220/GT/2013 and 132/GT/2014 has been considered as the opening capital cost for the purpose of determination of tariff for the period 2014-19. Accordingly, in terms of the above provision of the 2014 Tariff Regulations, the admitted closing capital cost is ₹275920.81 lakh as on 31.3.2014 is considered as opening capital cost as on 1.4.2014 for the period 2014-19.

8. Further, on scrutiny of Form-11 (depicting position of gross block and depreciation as on 01.04.2014) as submitted by the petitioner, it is observed that the Gross Block as on 1.4.2014 includes unserviceable/obsolete assets amounting to ₹1209.29 lakh. As per consistent methodology adopted by the Commission in not allowing tariff on unserviceable assets, this amount is required to be deducted from the admitted capital cost as on 1.4.2014. However, on scrutiny of Form-11 (depicting position of gross block and depreciation as on 31.3.2014) as submitted in Petition No. 132/GT/2014 along with fixed asset schedule as per book of the petitioner for the year 2013-14, it is observed that the value of unserviceable asset as on 31.3.2014 is only ₹0.05 lakh. On a specific query regarding this variation, the petitioner has submitted that the nomenclature "unserviceable/obsolete asset" was inadvertently pasted against assets amounting to ₹230.07 lakh

and ₹979.17 lakh and that the error may be rectified. In consideration of the submissions of the petitioner and in view of the fact that tariff of the generating station is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations, the value of unserviceable asset of ₹0.05 lakh has been deducted from the admitted capital cost of ₹275920.81 lakh as on 1.4.2014. Accordingly, the capital cost of ₹275920.76 lakh has been allowed as on 1.4.2014.

Projected Additional Capital Expenditure

9. Regulation 14 (3) of the 2014 Tariff Regulations, provides as under:

"14.(3) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:

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

(ii) Change in law or compliance of any existing law;

(iii)Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;

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

(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;

(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;

(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;

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

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

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal

supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

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."

10. The break-up details of the projected additional capital expenditure claimed by the petitioner for the period 2014-19 are as under:

(₹ in lakh)

Sl No	Package Name	Regulation	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Make up Water	14(3)(v)	81.66	0.00	0.0	0.0	0.00	81.66
2	Ash Dyke raising	14(3)(iv)	100.00	450.00	250.00	350.00	0.00	1150.00
3	Civil Construction	14(3)(v)	202.60	143.00	0.00	0.00	0.00	345.60
4	Civil/Mechanical works/Pollution& safety control measures	14(3)(iii)	646.51	2096.28	171.00	40.00	0.00	2953.79
	Total Additional Capital Expenditure claimed		**1030.77**	**2689.28**	**421.00**	**390.00**	**0.00**	**4531.05**

11. The total projected additional capital expenditure of ₹4531.05 lakh claimed by the petitioner is discussed in the succeeding paragraphs.

Make- up Water

12. The petitioner has claimed projected additional capital expenditure of ₹81.66 lakh in 2014-15 towards Make-up water system under Regulation 14(3)(v) of the 2014 Tariff Regulations. The petitioner has submitted that these are balance works included in the original scope of work for the package and hence may be allowed by the Commission. The respondent, DNH Power Distribution Corporation Limited vide affidavit dated 13.11.2015 has submitted that Regulation 14(3)(v) of the 2014 Tariff Regulations pertains to amounts which were held back for works executed prior to the cut-off date. It has also submitted that the cut-off date of the generating station was extended by the Commission from 31.3.2012 to 31.3.2013 and hence no further relaxation can be given to the

petitioner. It has further submitted that reasons have been furnished by the petitioner for withholding these payments. Similar submission has been made by the respondent no. 2.

13. The Commission directed the petitioner to furnish the details of the balance works along with the reasons for not completing these works within the cut-off date and the petitioner vide affidavit dated 4.1.2016 has submitted the details of balance works and the reasons in respect of Make-up water system as under:

> *"Against the proposed claim of ₹64.00 lakh during 2014-15 in the original petition. Final payments of ₹81.66 lakh were made. These works were completed within cut-off date. However the above payments were made in 2014-15 because agency has claimed additional amount for rerouting of pipelines for extended period. After negotiation, the same was settled and payments made…"*

14. In view of the submissions of the petitioner and since the additional capital expenditure incurred is towards balance payments/deferred liabilities under original scope of work, the additional capital expenditure for, the same is allowed under Regulation 14(3)(v) of the 2014 Tariff Regulations.

Ash Dyke raising works

15. The petitioner has claimed total projected additional capital expenditure of ₹1150.00 lakh [₹100.00 lakh in 2014-15, ₹450.00 lakh in 2015-16, ₹250.00 lakh in 2016-17 and ₹350.00 lakh in 2017-18] for Ash dyke raising works under Regulation 14(3)(iv) of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that projected expenditure is for planned work related to Ash handling and ash pond related works which are of continuous in nature during the operational life of the generating station. It has also submitted that ash pond is dynamic in nature and needs capacity enhancement and strengthening periodically and accordingly, activities like Ash dyke raising etc., are needed periodically and may be allowed by the Commission.

16. The respondent, DNH Power Distribution Corporation Limited has submitted that the petitioner was to incur all such expenditure by 31.3.2013 and if the same has not been incurred, the petitioner cannot claim at this stage. Similar submission has been made by the respondent no. 2

17. The petitioner was directed to furnish the details of ash dyke raising work along with details of height by which ash dyke is being raised, details of quantum of work, the capacity which is likely to be increased and the number of years for which the requirement of ash disposal system will cater to. In response, the petitioner vide affidavit dated 4.1.2016 has submitted the details of ash dyke as under:

Sl. No	Particulars	Height by which Ash Dyke being raised	Details of Quantum of work	Increased Capacity	No. of Years increased
1	Ist raising of Lagoon -1	4M (From RL 297M to 301 M)	2300 M embankment work,1.74 CuM of ash utilization in embankment work	14.20 lakh CuM	4.5 years (February 2017 to October 2021)
2	Ist raising of Lagoon -2	4M(From RL 297M to 301 M)	2300 M embankment work,1.94 Cum of ash utilization in embankment work	12.40 lakh CuM	4.0 years (November 2021 to October 2025).

18. We have examined the matter. It is observed from the above that the 1st raising of Lagoon-I shall cater the requirement of Ash handling for 4.5 years from February, 2017 to October, 2021 while the 1st raising of Lagoon-2 shall cater to the service of Ash handling for 4.0 years from November, 2021 to October, 2025 . Thus, Lagoon-2 after 1st raising would be put to use only from November, 2021 i.e. during the next tariff period. In this background, we consider it prudent to allow the expenditure for 1st raising of Ash dyke of Lagoon-I for smooth and continuous handling of ash disposal in the generating station while disallowing the expenditure for raising of Ash dyke of Lagoon-2 at this stage. Moreover, the petitioner has not furnished the expenditure for Lagoon-I & Lagoon-2 separately and hence, the expenditure for Ash Dyke works has been pro-rated in line with the capacity of Ash dyke to be increased after dyke raising. The capacity of Lagoon-I will be increased by ₹14.20 lakh CuM while the capacity of Lagoon-2 will be increased by ₹12.40 lakh CuM. Accordingly, the projected additional capital expenditure of ₹53.38 lakh (100*14.20/26.60) in 2014-15, ₹240.23 lakh (450*14.20/26.60) in 2015-16, ₹133.46 lakh (250*14.20/26.60) in 2016-17 and ₹186.84 lakh (350*14.20/26.60) in 2017-18 claimed by the petitioner is allowed.

Civil Construction

19. The petitioner has claimed projected additional capital expenditure of ₹202.62 lakh in 2014-15 and ₹143.00 lakh in 2015-16 towards Civil construction work under Regulation 14(3)(v) of the 2014 Tariff Regulations. The petitioner has submitted that these are balance works included in the original scope of work.

20. The respondent, DNH Power Distribution Corporation Limited vide affidavit dated 13.11.2015 has submitted that Regulation 14(3)(v) of the 2014 Tariff Regulations pertains to amounts which were held back for works executed prior to the cut-off date. It has also submitted that the cut-off date of the generating station was extended by the Commission from 31.3.2012 to 31.3.2013 and hence no further relaxation can be given to the petitioner. It has further submitted that reasons have been furnished by the petitioner for withholding these payments.

21. The petitioner was directed to furnish the details of balance Civil construction works along with reasons for not completing these works within the cut-off date of the generating station. In response, the petitioner vide affidavit dated 4.1.2016 has submitted the details of balance Civil construction works and the reasons as stated under:

Sl.No.		Details	Justification for Delay	Amount *(₹ in lakh)*
1	2014-15	Payments under this head are final bill payments of township packages (residential & non-residential buildings. Water supply. Shed for car parking, balance road work, Concrete pavement, RCC drain, STP west side boundary wall, Electrical work etc.)	Many documents were required from agency to process the FDs& FTE and IR clearance to close the contract. Royalty clearance certificate issued from mining department of CG Govt. was also required to close the contract and payment of final bill.	202.62
2	2015-16	Payments under this head are final bill payments of township packages (site development work, sewerage network, development of cricket/ football ground, operators rooms, cricket pitch & volleyball ground and landscaping work etc.).	Boundary wall on north & south side of township could not be completed in scheduled time because permission constructing the boundary wall was not granted by Nagar nigam Bhilai and water resource department of CG Govt.	143.00

22. We have examined the matter. It is noticed that the expenditure incurred is in respect of Payment of final bills in respect of balance works which were completed within the cut-off date of

the generating station. In view of the fact that the expenditure incurred is towards balance payments/deferred liabilities under original scope of work, the additional capital expenditure for ₹202.62 lakh in 2014-15 and ₹143.00 lakh in 2015-16 claimed by the petitioner is allowed under Regulation 14(3)(v) of the 2014 Tariff regulations.

Other Packages for Civil/Mechanical works/Pollution & Safety control measures

23. The petitioner has claimed projected additional capital expenditure of ₹646.51 lakh in 2014-15, ₹2096.28 lakh in 2015-16, ₹171.00 lakh in 2016-17 and ₹40.00 lakh in 2017-18 for Civil / Mechanical works / Pollution& Safety control measures under Regulation 14(3)(iii) of the 2014 Tariff Regulations. The petitioner has submitted that these are critical equipment /works required for safety and security of the plant and hence may be allowed by the Commission.

24. The respondent, DNH Power Distribution Corporation Limited has submitted that Regulation 14(3) (iii) of the 2014 Tariff Regulations provides for such works to ensure security and safety as advised by government agencies or statutory authorities. No such details of advice or direction by government agencies have been placed on record by the petitioner which necessitated the incurring of expenditure on these works. Similar submission has been made by the respondent no. 2.

25. The petitioner was directed to furnish the details of different works/ assets separately indicating the name of each package / work, date of issue of work order, cost of each package/ work, basis of estimation of cost of each work/package with proper justifications along with documentary evidence wherever necessary for undertaking such works/ package and with the name of the approving Government Agencies or statutory authorities. In response, the petitioner vide affidavit dated 4.1.2016 has submitted the details of assets /works in other packages.

26. On scrutiny of the details submitted, it is observed that these assets are mainly in the nature of spares /additional system, tools & tackles / minor assets. The petitioner has claimed additional capital expenditure of ₹99.804 lakh in 2015-16 for Spare LP Turbine blade, ₹1252.00 lakh in 2015-16 for spare GT, ₹47.00 lakh in 2016-17 for ID fan impeller with liner and ₹40.00 lakh in 2017-18 for

PHE. The petitioner has submitted that it has procured these spares as the lead time for procurement of LP Turbine blades & GT is very high during any contingency. Since these LP Turbine blades, GT, ID fan impeller and PHE are in the nature of spares, these are not permitted to be capitalized after the cut-off date of the generating station. However, the petitioner can book the expenditure under capital spares as per Regulation 29(2) of the 2014 Tariff Regulations.

27. However, the additional capital expenditure of items/assets like Chlorine leak detectors units for ₹7.00 lakh in 2014-15, S-Analyzer for ₹28.37 lakh in 2014-15, HGI Tester for ₹1.82 lakh in 2014-15, Humidity Chamber for ₹1.66 lakh in 2014-15, High temperature furnace with PID for ₹5.30 lakh in 2014-15, High mast for Township & Raw water for ₹14.00 lakh in 2014-15, Traction motor for loco for ₹40.00 lakh in 2014-15, Dew point meter for ₹12.00 lakh in 2015-16 and Turbidity meter for ₹2.00 lakh in 2015-16 are in the nature of tools & tackles and minor assets and hence not allowed to be capitalized.

Alternate supply for Raw water Pump house from BSP

28. The petitioner vide affidavit dated 4.1.2016 has claimed additional capital expenditure of ₹50.00 lakh in 2014-15 and ₹200.00 lakh in 2015-16 towards alternate supply for Raw water pump house from Bhillai steel plant under Regulation 14(3)(iii) of the 2014 Tariff Regulations. The petitioner in justification of the same has submitted that the alternate supply for raw water pump house is required because during outage of raw water system supply, water supply to plant will be stopped and station outage may occur after 14-15 hours. It has also submitted that the raw water pump house is located at a distance of approximately 15 km from plant and in the past for number of occasions due to cable failure, especially in rainy season, raw water system, power supply system had failed.

29. We have considered the matter. From the justification furnished by the petitioner, it is noticed that the expenditure for the asset/work of alternate Raw water pump from Bhilai Steel Plant is necessary for smooth operation of the plant and is in the overall interest of the beneficiaries. Considering the fact that alternate supply for raw water pump house is required during outage of

raw water system supply, we allow the projected additional capital expenditure of ₹50.00 lakh in 2014-15 and ₹200.00 lakh in 2015-16.

Installation of Energy saving equipments like VFD for ID Fan & CEP

30. The petitioner has claimed additional capital expenditure of ₹500.00 lakh in 2014-15 and ₹341.00 lakh in 2015-16 towards Installation of energy saving equipments like VFD for ID fan & CEP for one unit. The petitioner has submitted that this expenditure is mandatory as per requirement of Bureau of Energy Efficiency for Energy Audit. Considering the fact that the expenditure is required for compliance with the guidelines/directions of the statutory authority, we allow the claim of the petitioner provisionally. However, the petitioner is directed to submit the documentary evidence in support of its claim for the said expenditure.

Installation of additional Weighing Machine for MGR, CCTV camera for motion Weigh bridge, Automatic Bomb Calorimeter and XRF analyzer

31. The petitioner has claimed additional capital expenditure of ₹25.00 lakh in 2014-15 for In motion Weigh bridge for MGR including Civil work, ₹22.00 lakh in 2015-16 for Weigh bridge (public Silo), ₹0.36 lakh in 2014-15 for CCTV camera for motion Weigh bridge for MGR, ₹25.00 lakh for Automatic Bomb Calorimeter, ₹20.00 lakh in 2015-16 for XRF analyzer for metal composition checking. The petitioner has submitted that the Vigilance Department vide circular dated 23.5.2013 has recommended for installation of these equipments in sensitive areas for safety & security of the plant. In view of this, additional capital expenditure is allowed in terms of Regulation 14(3) (iii) of the 2014 Tariff Regulations.

Installation of EQMS and CEMS

32. The petitioner has claimed additional capital expenditure of ₹33.83 lakh in 2015-16 towards Effluent Quality Management system and ₹91.65 lakh in 2015-16 towards Continuous Stack Emission Monitoring system. The petitioner has enclosed a copy of the CPCB letter dated 5.2.2014 for requirement of installation of these equipments and has submitted that CPCB has issued direction to state regulators for implementation of these system by all industries including Power

plants. In view of the above, the expenditure claimed by the petitioner is allowed under Regulation 14(3) (iii) of the 2014 Tariff Regulations.

Fire alarm& Detection System spares & cards, lighting arrangement for inspection of wagons & Procurement of Rail line

33. The petitioner has claimed additional capital expenditure of ₹2.00 lakh in 2014-15 and ₹22.00 lakh in 2015-16 towards Fire alarm & detection system, spares & cards for ₹20.00 lakh in 2016-17 for Walkway and lighting arrangement for inspection of wagons for safety of Railway/ NSPCL personal and ₹50.00 lakh in 2016-17 for Procurement of Rail line for safety of rake wagons. The expenditure claimed is in respect of assets which are for safety of equipments and personnel of the plant. Hence, the same is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations.

34. Accordingly, against the claim for additional capital expenditure of ₹646.51 lakh in 2014-15, ₹2096.28 lakh in 2015-16, ₹171.00 lakh in 2016-17 and ₹40.00 lakh in 2017-18 towards Other Packages for Civil/Mechanical works / Pollution & safety control measures, the additional capital expenditure of ₹602.36 lakh in 2014-15, ₹730.48 lakh in 2015-16 and ₹70.0 lakh in 2016-17 is allowed**.**

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

(₹ in lakh)

Sl. No.	**Package Name**	**Regulation**	**Projected additional capital expenditure**					
			2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	Make up Water	14(3)(v)	81.66	0.00	0.00	0.00	0.00	81.66
2	Ash Dyke raising	14(3)(iv)	53.38	240.23	133.46	186.84	0.00	613.91
3	Civil Construction	14(3)(v)	202.60	143.00	0.00	0.00	0.00	345.60
4	Civil/Mechanical works/Pollution& safety control measures	14(3)(iii)	602.36	730.48	70.00	0.00	0.00	1402.84
	Total Additional Capital Expenditure		**940.00**	**1113.71**	**203.46**	**186.84**	**0.00**	**2444.01**

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	275920.76	276860.76	277974.47	278177.93	278364.77
Projected additional capital expenditure admitted	940.00	1113.71	203.46	186.84	0.00
Closing capital cost	**276860.76**	**277974.47**	**278177.93**	**278364.77**	**278364.77**

Debt–Equity Ratio

37. 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.

38. The gross normative loan and equity amounting to ₹196131.10 lakh and ₹79789.71 lakh, respectively as on 31.3.2014 as considered in order dated 29.12.2015 in Petition No. 220/GT/2013

and 132/GT/2014 has been considered as gross normative loan and equity as on 1.4.2014. Further, unserviceable asset de-capitalized as on 1.4.2014 amounting to ₹0.05 lakh has been allocated to debt and equity in the ratio of 70:30 as also proportionate adjustment has been made to cumulative depreciation and cumulative repayment as on 1.4.2014 for the same. Further, the admitted additional capital expenditure has been allocated in the debt equity ratio of 70:30. This is subject to truing-up in terms of the 2014 Tariff Regulations

Return on Equity

39. 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.

40. 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.

41. The petitioner has claimed Return on Equity (ROE) considering the base rate of 15.5% and effective tax rate of 20.9605% (MAT rate for the year 2014-15) for the entire period 2014-19. Though the 2014 Tariff Regulations specify the computation of effective tax rate on the basis of tax paid, we deem it proper to allow the grossing up on MAT rate considering the fact that the matter is decided and disposed of during the year 2016-17, at this stage, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards till 2018-19 for the purpose of grossing up of base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for 2014-15 and 19.705% for 2015-16 onwards and the same is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations. Accordingly, return on equity has been worked out as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Normative Equity	79789.69	80071.69	80405.81	80466.84	80522.90
Addition due to Additional capital expenditure	282.00	334.11	61.04	56.05	0.00
Closing Equity	80071.69	80405.81	80466.84	80522.90	80522.90
Average Equity	79930.69	80238.75	80436.33	80494.87	80522.90
Rate of Return on Equity	15.500%	15.500%	15.500%	15.500%	15.500%
Effective tax rate	20.961%	21.342%	21.342%	21.342%	21.342%
Return on Equity (Pre-tax)	19.610%	19.705%	19.705%	19.705%	19.705%
Return on Equity (Pre-tax) – (annualized)	**15674.41**	**15811.05**	**15849.98**	**15861.51**	**15867.04**

Interest on Loan

42. 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."

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

(a) The gross normative loan of ₹196131.06 lakh as on 1.4.2014 has been considered after adjustment in respect of unserviceable asset deducted as on 1.4.2014.

(b) Cumulative repayment of loan of ₹63347.79 lakh as on 31.3.2014 as considered in order dated 29.12.2015 in Petition No. 220/GT/2013 and 132/GT/2014 has been considered as on 1.4.2014.

(c) Accordingly, the net normative opening loan as on 1.4.2014 works out to ₹ 132783.28 lakh.

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

(e) Depreciation allowed for the period has been considered as repayment of normative loan during the respective year for the period 2009-14.

(f) In line with the provisions of the regulation, the weighted average rate of interest has been calculated by applying the actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the period 2014-19, if any, for the generating station. The actual rate of interest as provided by the petitioner has been considered for the purpose of tariff, and the same is subject to truing-up. The calculations for weighted average rate of interest are enclosed as **Annexure-I** to this order.

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Loan	196131.06	196789.07	197568.66	197711.08	197841.87
Cumulative Repayment of Loan up to previous year	63347.78	77572.51	91850.09	106161.56	120483.08
Net Opening Loan	132783.28	119216.56	105718.57	91549.52	77358.79
Addition due to Additional Capitalisation	658.00	779.59	142.42	130.79	0.00
Repayment of Loan during the period	14224.73	14277.58	14311.47	14321.52	14326.32
Net Closing Loan	119216.56	105718.57	91549.52	77358.79	63032.47
Average Loan	125999.92	112467.56	98634.05	84454.16	70195.63
Weighted Average Rate of Interest on Loan	9.224%	9.242%	9.272%	9.333%	9.528%
Interest on Loan	**11622.38**	**10394.09**	**9145.13**	**7882.09**	**6688.47**

Depreciation

45. 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."

46. The cumulative depreciation amounting to ₹63347.79 lakh as on 31.3.2014 as considered in order dated 29.12.2015 in Petition Nos. 220/GT/2013 and 132/GT/2014 has been considered as on 1.4.2014.However, considering the cumulative depreciation adjustment corresponding to unserviceable assets deducted from the admitted capital cost as on 1.4.2014, the cumulative depreciation as on 1.4.2014 works out to ₹63347.78 lakh. Further, the value of freehold land, if any, included in the average capital cost has been adjusted while calculating depreciable value for the purpose of tariff. Accordingly, the balance depreciable value (before providing depreciation) for the year 2014-15 works out to ₹185403.90 lakh. As on 1.4.2014, the used life of the generating station (i.e. 4.69 years) is less than 12 years from the Effective station COD of 22.7.2009 and therefore, depreciation has been calculated by applying the weighted average rate of depreciation for the period 2014-19. The petitioner has claimed depreciation considering the weighted average rate of depreciation of 5.13% for the period 2014-19. However, considering the rates of depreciation as specified in Appendix-II to the 2014 Tariff Regulations and the gross block position as on 1.4.2014, the weighted average rate of depreciation works out to 5.1466% (while doing so the rates of

depreciation corresponding to un-serviceable asset amounting to ₹230.07 lakh and ₹979.17 lakh as stated above has been taken as 5.28%, which has been considered for the purpose of tariff for the period 2014-19 and the same is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations. Accordingly, depreciation has been computed as under:

(₹ In lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Average Capital Cost	276390.76	277417.61	278076.20	278271.35	278364.77
Freehold land included above	0.00	0.00	0.00	0.00	0.00
Depreciable value @ 90%	248751.68	249675.85	250268.58	250444.21	250528.29
Remaining useful life at the beginning of the year	20.31	19.31	18.31	17.31	16.31
Balance depreciable value	185403.90	172103.34	158418.49	144282.65	130045.21
Depreciation (annualized)	**14224.73**	**14277.58**	**14311.47**	**14321.52**	**14326.32**
Cumulative depreciation at the end	77572.51	91850.09	106161.56	120483.08	134809.40

O&M Expenses

47. The petitioner has claimed O&M expenses in the working capital as under:

(₹ In lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**Total**
O&M Expenses under Regulation 29(1)	11950	12700	13500	14350	15255	**67755.0**
O&M Expenses under Regulation 29(3)						
No. of km. of double circuit line for Associated Transmission System	13.794	13.794	13.794	13.794	13.794	
Norm for O&M expenses in ₹ lakh/km for Associated transmission system.	0.707	0.731	0.755	0.780	0.806	
O&M expenses for 13.794 KM double ckt line for Associated Transmission line *(₹ in lakh)*	9.75	10.08	10.41	10.76	11.12	
Norm for O&M expenses per Bay for Associated Transmission System	60.30	62.30	64.37	66.51	68.71	
O&M expenses for 7 no. of Bays for Associated Transmission System	422.10	436.10	450.59	465.57	480.97	**2255.33**
Water Charges deducted @ 1.16 ₹ lakh/MW	580.00	580.00	580.00	580.00	580.00	**2900.00**
O&M Expenses under Regulation 29(2)						
Water Charges	1613.45	1715.90	1824.86	1940.74	2063.98	**9158.93**
Total O&M Expenses	**13415.30**	**14282.09**	**15205.87**	**16187.07**	**17231.07**	**76321.40**

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

(₹ in lakh/MW)

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

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

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
11950	12700	13500	14350	15255

50. Further, the petitioner has claimed O & M charges for dedicated transmission lines and sub-stations /bays for captive power generating station under Regulation 29(3) of the 2014 Tariff Regulations as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
No. of km. of double circuit line for Associated Transmission System	13.794	13.794	13.794	13.794	13.794
Norm for O&M expenses in ₹ lakh/km for associated transmission system.	0.707	0.731	0.755	0.780	0.806
O&M expenses for 13.794 KM double ckt line for Associated Transmission line (₹ in lakh)	9.75	10.08	10.41	10.76	11.12
Norms for O&M expenses per bay for) Transmission line	60.30	62.30	64.37	66.51	68.71
No. of Bays	7	7	7	7	7
O&M expenses for 7 no. Bays	422.10	436.10	450.59	465.57	480.97

51. In Petition No. 308/2009 filed by the petitioner for approval of tariff of the generating station from COD till 31.3.2014, it was submitted that the petitioner had constructed dedicated transmission lines. Accordingly, the Commission in order dated 29.7.2010 had allowed the cost of transmission lines and substation bays in the capital cost of the project. Further, the petitioner in the said petition had submitted that out of the 7 no. of bays for associated transmission system, 3 no. of bays fall within the side of the petitioner and the rest 4 no. of bays fall within the Raipur sub-station of Power Grid Corporation of India (PGCIL) for connection to the double bus scheme. The petitioner had also submitted that the assets included in the 4 bays at Raipur sub-station belonged to the petitioner and it had awarded the O&M contract to PGCIL for O&M of these 4 bays.

Accordingly, the Commission in order dated 29.7.2010 in Petition No. 308/2009 had allowed O&M expenses for the transmission system. The relevant portion of the order is extracted as under:

> *"51. The petitioner has submitted that O&M charges for dedicated transmission lines and sub-stations /bays for captive power generating station has not been provided in the O&M expenses for thermal power generating stations under the 2009 regulations specified by the Commission. Hence, the petitioner has claimed the following O&M expenses for the dedicated transmission line:*

(Rs in lakh)

Particulars	***2009-10***	***2010-11***	***2011-12***	***2012-13***	***2013-14***
No. of km. of double circuit line	*13.794*	*13.794*	*13.794*	*13.794*	*13.794*
Norms/km for transmission line	*0.627*	*0.663*	*0.701*	*0.741*	*0.783*
O&M expenses for Transmission	*8.60*	*9.10*	*9.70*	*10.20*	*10.80*
No. of Bays	*7*	*7*	*7*	*7*	*7*
Norms/bay	*52.40*	*55.40*	*58.57*	*61.92*	*65.46*
O&M expenses for Bays	***367***	***388***	***410***	***433***	***458***

> *52. The petitioner has submitted that out of the 7 no. of bays for associated transmission system, 3 no. of bays fall within the side of the petitioner and the rest 4 no. of bays fall within the Raipur sub-station of Power Grid Corporation of India (PGCIL) for connection to the double bus scheme. The petitioner has also submitted that the assets included in the 4 bays at Raipur sub-station belonged to the petitioner and it has awarded the O&M contract to PGCIL for O&M of these 4 bays. The submission of the petitioner is found to be in order and the O&M expenses claimed is allowed."*

52. In line with the above decision, the O&M expenses for transmission lines & substation of bays has been allowed for the period 2014-19 as claimed by the petitioner.

Water Charges

53. Regulation 29(2) of the 2014Tariff 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*

54. 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.

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

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1613.45	1715.90	1824.86	1940.74	2063.98

56. 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 27.10.2015 to furnish the details of the actual water consumption along with the rate of water charges for the last five years (i.e 2009-10 to 2013-14) along with relevant notification in support of the same. The details in respect of water charges such as type of cooling water system, water consumption, rate of water charges as applicable for 2009-14 have been furnished by the petitioner as under:

Year	Quantity of sweet water (KL)	Rate (₹/cum)	Period	Total Water Charges *(₹in lakh)*
2009-10	**16190468**	3.6	April-March	**582.86**
2010-11	1235671	3.6	April	44.48
	14019329	7.0	May-March	981.35
	15255000			**1025.83**
2011-12	1179280	7.0	April	82.55
	14075720	8.05	May-March	1133.10
	15255000			**1215.65**
2012-13	1274257	8.05	April	102.58
	14016826	9.26	May-March	1297.96
	15291083			**1400.54**
2013-14	1083113	9.26	April	100.30
	14207970	10.65	May-March	1513.15
	15291083			**1613.45**
2009-14	**77282634**			**5838.32**

57. The petitioner has submitted that as per agreement with WRD, Government of Chhattisgarh, the petitioner has to pay the water charges at 90% of allocated quantity of 0.6 TMC (16.2million cubic meter) , i.e. for 0.54 TMC(14.2million cubic meter), if actual water consumption is less than 90% of allocated quantity , otherwise at actual consumption. It has also submitted that the allocated quantity of 0.6TMC is as per the agreement with Govt. of Chhattisgarh at the time of construction of Mohad reservoir from which the petitioner is getting water for the generating station.

The petitioner has submitted that the same was brought in the notice of the Commission and was considered by the Commission in order 29.7.2010 in Petition No. 308/2009 for the period 2009-14.

Projection for Water charges Rate for 2014-15 to 2018-19

58. The petitioner has claimed water charges for ₹1613.00 lakh in 2014-15 on the basis of actual water charges paid during 2013-14. Further, water charges claimed for the period from 2015-16 to 2018-19 is on the basis of yearly escalation of 6.35% on the water charges claimed for the previous year. Thus, the petitioner has not claimed any escalation in water charges during 2014-15 as compared to the year 2013-14.

59. As per the Notification dated 31.5.2010 of Water Resource Department of Chhattisgarh, the rate of water charge in 2014-15 is ₹12.25 /KL while the rate in 2013-14 was ₹10.65/KL Further, as per notification dated 24.2.2016, the rate of water taken from canal (Tandula canal) from which water is being supplied to the generating station is ₹12.25/ KL and is effective from 24.2.2016 until further orders. The minimum water consumption in the generating station during the period 2009-14 was 15255000 KL. Therefore, minimum water consumption of 15255000 KL has been considered for allowing water charges on projection basis during the period 2014-19.

60. In the light of above, water charges have been allowed during 2014-19 based on least water consumption of 15255000 KL as under:-

Year 1	Projected Quantity Considered (KL) (2)	Rate (₹/KL) (3)	Projected Water charge Computed (₹ in lakh) (4)= (2)x(3)
2014-15	15255000	12.25	1868.74
2015-16	15255000	12.25	1868.74
2016-17	15255000	12.25	1868.74
2017-18	15255000	12.25	1868.74
2018-19	15255000	12.25	1868.74

61. The water charges as allowed during the period 2014-19 on projection basis are marginally higher by ₹184.77 lakh (9343.70-9158.93) than the water charges claimed by the petitioner. This is on account of the fact that the petitioner has considered water charges actually paid during 2013-14 for the year 2014-15 also during which water charges rate was ₹10.65 /KL whereas, the water

charges of ₹12.25/KL in the year 2014-15 has been considered as per Chhattisgarh Government notification dated 31.10.2010.

Capital spares

62. 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 of tariff, shall be considered on merits, after prudence check.

63. The total O&M expenses including water charges as claimed by the petitioner and as allowed for tariff purpose is as under:

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**Total**
O&M Expenses as claimed under Regulation 29(1)	11950	12700	13500	14350	15255	**67755.0**
O&M Expenses as allowed under Regulation 29(1)	**11950**	**12700**	**13500**	**14350**	**15255**	**67755.0**
Water Charges as claimed	1613.45	1715.90	1824.86	1940.74	2063.98	9158.93
Water Charges as allowed	**1868.74**	**1868.74**	**1868.74**	**1868.74**	**1868.74**	**9343.70**
Water Charges deducted @ 1.16 ₹ lakh/MW	580.0	580.0	580.0	580.0	580.0	2900.0
Net Water Charges as allowed	**1288.74**	**1288.74**	**1288.74**	**1288.74**	**1288.74**	**6443.70**
O&M expenses claimed for 7 no. of for O&M expenses 29(3)	422.10	436.10	450.59	465.57	480.97	422.10
O&M expenses claimed for 13.794 KM double ckt line for Transmission line (₹ in lakh)	9.75	10.08	10.41	10.76	11.12	52.12
O&M expenses allowed for 7 no. of for O&M expenses 29(3)	**422.10**	**436.10**	**450.59**	**465.57**	**480.97**	**422.10**
O&M expenses allowed for 13.794 KM double ckt line for Transmission line *(₹ in lakh)*	**9.75**	**10.08**	**10.41**	**10.76**	**11.12**	**52.12**
Total O&M Expenses as claimed	**13415.30**	**14282.09**	**15205.87**	**16187.07**	**17231.07**	**76269.26**
Total O&M Expenses allowed	**13670.59**	**14434.92**	**15249.74**	**16115.07**	**17035.83**	**76506.15**

Operational Norms

64. The operational norms in respect of the generating station considered 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

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

Target Availability

66. Regulation 36 of the 2014Tariff 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.*

67. The petitioner has considered the Target Availability of 83% for the period 2014-19. The Commission due to shortage of domestic coal supply has relaxed the 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 Regulation 36(A) of the 2014 Tariff Regulations, the Target Availability of 83% is considered for the period 2014-17 and 85% for the period 2017-19.

Heat Rate (kcal/kwh)

68. Regulation 36(C) (c) of the 2014 Tariff Regulations as under:

> *'36 (C) Gross Station Heat Rate:-*
> *(c) Thermal Generating Station having COD on or after 1.4.2009 till 31.3.2014*
> *(i) Coal-based and lignite-fired Thermal Generating Stations*
> *= 1.045 x Design Heat Rate (kCal/kWh)*
> *Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure:*
>
> *Provided that the heat rate norms computed as per above shall be limited to the heat rate norms approved during FY 2009-10 to FY 2013-14'.*

69. As per Regulation 36 (C) (c) of the 2014 Tariff Regulations, the Station Heat Rate for thermal generating stations having declared COD on or after 1.4.2009 till 31.3.2014 is 1.045 x Design heat rate (kcal/kWh). The COD of the generating station is 31.10.2009. The petitioner vide affidavit dated 18.8.2014 has not furnished the guaranteed design heat rate of generating station in Form-3 of the petition. Therefore, the design Heat Rate of 2300 kcal/kWh has been considered as approved in order dated 29.7.2010 in Petition No. 308/2009. However, with the normative deviation of 4.5% in the design heat rate, the GSHR works out to 2403.5 kcal/kWh (2300x1.045).

Accordingly, the Station Heat Rate of 2403.5 kcal/kWh is considered for the purpose of tariff for the period 2014-19.

Auxiliary Power Consumption

70. Regulation 36(E)(a) of the 2014 Tariff Regulations provides the Auxiliary Energy Consumption of 8.5% for coal based generating stations of 250 MW sets with induced draft cooling towers the norms shall be further increased by 0.5%. Hence, the Auxiliary Energy Consumption considered by the petitioner is as per norms and is allowed.

Specific Oil Consumption

71. 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

72. 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 Cost and Energy Charges

73. 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:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 1 month towards stock	5171.02	5185.19	5171.02	5171.02	5171.02
Cost of Coal for 1 month towards generation	5171.02	5185.19	5171.02	5171.02	5171.02
Cost of Secondary fuel oil 2 months	159.13	159.57	159.13	159.13	159.13

74. The Computation of Energy Charges and fuel component (coal cost) in working capital for the period 2014-19 is based on 'as received' GCV of coal. The Commission vide ROP of the hearing dated 27.2.2015 directed the petitioner to submit the GCV of coal on 'as received' basis. In response, the petitioner vide affidavit dated 4.6.2015 has submitted that they did not have suitable infrastructure for measurement of representative GCV on 'as received' basis.

75. The issue of 'as received' GCV for computation of energy charges was challenged by NTPC and other generating companies through writ petition in the Hon'ble High Court of Delhi. The writ petition was heard on 7.9.2015 and Hon'ble High Court of Delhi has 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.

76. As per the directions of the Hon'ble High Court, the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014 had 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."*

77. In view of above decision, the “as received” GCV of coal samples taken from loaded wagons at the generating station should be considered for computation of coal cost and Energy Charges in Working Capital. However, in the absence of “as received” GCV of coal the GCV of coal on “as billed” basis have been considered for computation of coal cost and Energy Charges for the purpose of working capital computations. The cost for fuel components in working capital have been computed by the Commission at 83% NAPAF for the year 2014-15, 2015-16 and 2016-17 and at 85% NAPAF for the year 2017-18 & 2018-19 and based on as billed GCV of coal and price of coal procured and secondary fuel oil for the preceding three months from March 2014 to January 2014 is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock-30 Days	4319.12	4319.12	4319.12	4423.20	4423.20
Cost of Coal for Generation-30 Days	4319.12	4319.12	4319.12	4423.20	4423.20
Cost of Secondary fuel oil 2 months	159.13	159.57	159.13	162.97	162.97

Energy Charge Rate (ECR)

78. 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 formula:

(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 fired, 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, per

79. The petitioner has claimed an Energy Charge Rate (ECR) of 190.456 Paise/kWh based on the weighted average price, GCV of coal (as fired basis) & Oil procured and burnt for the preceding three months. It is observed that the petitioner has not placed on record the GCV of coal on ‘as

received' basis though the petitioner was statutorily required to furnish such information with effect from 1.4.2014. In compliance with the direction of the Hon'ble High Court of Delhi, the Commission in its order dated 25.1.2016 in Petition No. 283/GT/2014 has clarified that the measurement of GCV of coal on as received basis shall be taken from the loaded wagons at the unloading point either manually or through the Hydrolic Augur. The petitioner has not submitted the required data regarding measurement of GCV of coal in compliance with the directions contained in the said order dated 25.1.2016. The present petition cannot be kept pending till the petitioner submits the required information. Hence, the Commission has decided to compute the energy charges by provisionally taking the GCV of coal on as 'billed basis' and allowing on adjustment for inherent moisture as per the formula given as under:

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

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

80. Energy charges for 2 months on the basis of billed GCV of coal have been worked out as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
8915.64	8940.06	8915.64	9130.47	9130.47

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

	Unit	**2014-19**
Capacity	MW	**500**
Weighted average Gross Station Heat Rate	Kcal/kWh	2403.5
Weighted average Aux. Energy Consumption	%	9.0
Weighted average GCV of oil (as fired)	Kcal/lit	9912.59
Weighted average GCV of Coal (as Billed)	Kcal/kg	4044.17
Weighted average price of oil	Rs/KL	52527.74
Weighted average price of Coal	Rs/MT	2437.23
Rate of Energy Charge ex-bus	**Paise/kWh**	**161.700**

82. 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. 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.

83. The cost for fuel component in working capital have been computed at 83% NAPAF for the years 2014-15, 2015-16 and 2016-17 and at 85% NAPAF for the year 2017-18 & 2018-19 and 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 60 days	8638.24	8638.24	8638.24	8846.39	8846.39
Cost of Secondary fuel oil 2 months	159.13	159.57	159.13	162.97	162.97

Maintenance Spares

84. The petitioner has claimed maintenance spares in the working capital including water charges and transmission charges as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2683.06	2856.42	3041.17	3237.41	3446.21

85. Maintenance spares @ 20% of the operation & maintenance expenses as specified in Regulation 29 and is allowed as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2734.118	2886.984	3049.948	3223.014	3407.166

Receivables

86. 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 -2 months	8915.64	8940.06	8915.64	9130.47	9130.47
Fixed Charges - 2 months	9907.29	9866.05	9809.19	9760.52	9721.76
	18822.93	**18806.11**	**18724.82**	**18890.99**	**18852.24**

O & M Expenses (1 month)

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

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1117.94	1190.17	1267.16	1348.92	1435.92

88. Based on the above norms, O&M expenses for 1 month is allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1139.22	1202.91	1270.81	1342.92	1419.65

Rate of interest on working capital

89. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

"Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later."

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal toward stock – 30 days	4319.12	4319.12	4319.12	4423.20	4423.20
Cost of coal towards generation - 30 days	4319.12	4319.12	4319.12	4423.20	4423.20
Cost of secondary fuel oil - 2 months	159.13	159.57	159.13	162.97	162.97
Maintenance Spares - 20% of O&M	2734.12	2886.98	3049.95	3223.01	3407.17
Receivables	18822.93	18806.11	18724.82	18890.99	18852.24
O&M expenses - 1 month	1139.22	1202.91	1270.81	1342.92	1419.65
Total Working Capital	**31493.64**	**31693.82**	**31842.96**	**32466.29**	**32688.41**
Rate of Interest	13.500%	13.500%	13.500%	13.500%	13.500%
Interest on Working Capital	**4251.64**	**4278.67**	**4298.80**	**4382.95**	**4412.94**

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	14224.73	14277.58	14311.47	14321.52	14326.32
Interest on Loan	11622.38	10394.09	9145.13	7882.09	6688.47
Return on Equity	15674.41	15811.05	15849.98	15861.51	15867.04
Interest on Working Capital	4251.64	4278.67	4298.80	4382.95	4412.94
O&M Expenses	13670.59	14434.92	15249.74	16115.07	17035.83
Total	**59443.75**	**59196.30**	**58855.12**	**58563.14**	**58330.59**

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.

Application Fee and Publication Expenses

92. 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 ₹2200000/- for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover *pro rata,* the filing fees and the expenses incurred on publication of notices for the period 2014-15 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2015-19 shall be recovered *pro rata* after deposit of the same and production of documentary proof.

93. 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.

94. Petition No. 257/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**

Annexure-I

Calculations for Weighted Average Rate of Interest on Loan

Sl. no.	Name of loan	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1	UBI (445 Cr)	Gross Opening	44,500.00	44,500.00	44,500.00	44,500.00	44,500.00
		Less: Cumulative Repayment	20,227.27	24,272.73	28,318.18	32,363.64	36,409.09
		Net Opening Loan	**24,272.73**	**20,227.27**	**16,181.82**	**12,136.36**	**8,090.91**
		Add: Drawl during the year / period					
		Less: Repayment during the year / period	4,045.45	4,045.45	4,045.45	4,045.45	4,045.45
		Net Closing Loan	**20,227.27**	**16,181.82**	**12,136.36**	**8,090.91**	**4,045.46**
		Average Loan	22,250.00	18,204.55	14,159.09	10,113.64	6,068.18
		ROI	9.430%	9.430%	9.430%	9.430%	9.430%
		Interest	**2,098.18**	**1,716.69**	**1,335.20**	**953.72**	**572.23**
2	CBI (100 Cr)	Gross Opening	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
		Less: Cumulative Repayment	3,178.00	4,086.00	4,994.00	5,902.00	6,810.00
		Net Opening Loan	**6,822.00**	**5,914.00**	**5,006.00**	**4,098.00**	**3,190.00**
		Add: Drawl during the year / period					
		Less: Repayment during the year / period	908.00	908.00	908.00	908.00	908.00
		Net Closing Loan	**5,914.00**	**5,006.00**	**4,098.00**	**3,190.00**	**2,282.00**
		Average Loan	6,368.00	5,460.00	4,552.00	3,644.00	2,736.00
		ROI	10.070%	10.070%	10.070%	10.070%	10.070%
		Interest	**641.26**	**549.82**	**458.39**	**366.95**	**275.52**
3	REC (215 Cr)	Gross Opening	21,500.00	21,500.00	21,500.00	21,500.00	21,500.00
		Less: Cumulative Repayment	10,750.00	12,900.00	15,050.00	17,200.00	19,350.00
		Net Opening Loan	**10,750.00**	**8,600.00**	**6,450.00**	**4,300.00**	**2,150.00**
		Add: Drawl during the year / period					
		Less: Repayment during the year / period	2,150.00	2,150.00	2,150.00	2,150.00	2,150.00
		Net Closing Loan	**8,600.00**	**6,450.00**	**4,300.00**	**2,150.00**	**-**
		Average Loan	9,675.00	7,525.00	5,375.00	3,225.00	1,075.00
		ROI	8.000%	8.000%	8.000%	8.000%	8.000%
		Interest	**774.00**	**602.00**	**430.00**	**258.00**	**86.00**
4	REC (1270 Cr)	Gross Opening	1,07,000.00	1,07,000.00	1,07,000.00	1,07,000.00	1,07,000.00
		Less: Cumulative Repayment	51,357.14	62,485.71	73,614.29	84,742.86	95,871.43
		Net Opening Loan	**55,642.86**	**44,514.29**	**33,385.71**	**22,257.14**	**11,128.57**
		Add: Drawl during the year / period					
		Less: Repayment during the year / period	11,128.57	11,128.57	11,128.57	11,128.57	11,128.57
		Net Closing Loan	**44,514.29**	**33,385.71**	**22,257.14**	**11,128.57**	**-**
		Average Loan	50,078.57	38,950.00	27,821.43	16,692.86	5,564.29
		ROI	9.000%	9.000%	9.000%	9.000%	9.000%
		Interest	**4,507.07**	**3,505.50**	**2,503.93**	**1,502.36**	**500.79**
5	UBI-II	Gross Opening	11,000.00	11,000.00	11,000.00	11,000.00	11,000.00
		Less: Cumulative Repayment	3,850.00	4,950.00	6,050.00	7,150.00	8,250.00
		Net Opening Loan	**7,150.00**	**6,050.00**	**4,950.00**	**3,850.00**	**2,750.00**

		Add: Drawl during the year / period					
		Less: Repayment during the year / period	1,100.00	1,100.00	1,100.00	1,100.00	1,100.00
		Net Closing Loan	**6,050.00**	**4,950.00**	**3,850.00**	**2,750.00**	**1,650.00**
		Average Loan	6,600.00	5,500.00	4,400.00	3,300.00	2,200.00
		ROI	11.209%	11.209%	11.209%	11.209%	11.209%
		Interest	**739.79**	**616.49**	**493.19**	**369.89**	**246.60**
10	**Grand Total**	Gross Opening	1,94,000.00	1,94,000.00	1,94,000.00	1,94,000.00	1,94,000.00
		Less: Cumulative Repayment	89,362.41	1,08,694.44	1,28,026.47	1,47,358.49	1,66,690.52
		Net Opening Loan	**1,04,637.59**	**85,305.56**	**65,973.53**	**46,641.51**	**27,309.48**
		Add: Drawl during the year / period	-	-	-	-	-
		Less: Repayment during the year / period	19,332.03	19,332.03	19,332.03	19,332.03	19,332.03
		Net Closing Loan	**85,305.56**	**65,973.53**	**46,641.51**	**27,309.48**	**7,977.46**
		Average Loan	94,971.57	75,639.55	56,307.52	36,975.49	17,643.47
		ROI	9.2241%	9.2419%	9.2718%	9.3330%	9.5283%
		Interest	**8,760.29**	**6,990.50**	**5,220.71**	**3,450.92**	**1,681.13**
		Less: IDC included in ACE					
		Net Interest	**8,760.29**	**6,990.50**	**5,220.71**	**3,450.92**	**1,681.13**
		Weighted Average Rate of Interest on loan on net of IDC in Additional Capital Expenditure	9.2241%	9.2419%	9.2718%	9.3330%	9.5283%