

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 340/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 : 03.03.2017**

**In the matter of**

Approval of tariff for Korba Super Thermal Power Station Stage-III (1x500 MW) for the period from 1.4.2014 to 31.3.2019

**And in the matter of**

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

**.....Petitioner**

**Vs**

1. Madhya Pradesh Power Management Company Ltd.,  
Shakti Bhawan, Vidyut Nagar,  
Rampur, Jabalpur – 482 008
2. Maharashtra State Electricity Distribution Company Ltd.,  
Pradashgad, Bandra (East),  
Mumbai – 400 051
3. Gujarat Urja Vikas Nigam Ltd.  
Sardar Patel Vidyut Bhawan,  
Race Course, Vadodara  
Gujarat – 390 007
4. Chattisgarh State Power Distribution Company Ltd.,  
Raipur
5. Electricity Department, Department of Goa,  
Vidyut Bhawan, Panaji Goa – 403 001
6. Electricity Department,  
Administration of Daman & Diu  
Daman – 396 210



7. Electricity Department,  
Administration of Dadra & Nagar Haveli  
Silvassa – 396 230

.....**Respondents**

**Parties present:-**

**For Petitioner:** Shri Ajay Dua, NTPC  
Shri Nishant Gupta, NTPC  
Shri T. Vinodh Kumar, NTPC  
Shri Parimal Piyush, NTPC  
Shri Rajeev Choudhary  
Shri. Manish Jain, NTPC  
Shri Sachin Jain, NTPC

**For Respondents:** Shri Rishabh Sigh, MPPMCL

**ORDER**

This petition has been filed by the petitioner, NTPC for approval of tariff of Korba Super Thermal Power Station Stage-III (1x500 MW) (hereinafter referred to as “the generating station”) for the period 20014-19 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”).

2. The generating station with an approved installed capacity of 500 MW was declared under commercial operation on 21.3.2011. The tariff for this station for the period from COD (21.3.2011) to 31.3.2014 was determined by the Commission’s order dated 3.5.2012 in Petition No. 247/2010. Aggrieved by the said order, the petitioner filed a review petition with Petition No. 16/RP/2012 seeking review of the order dated 3.5.2012 on the issues of (a) delay in the commissioning of the project (not allowing time overrun) and (b) adjustment of Interest During Construction (IDC) prior to commercial operation of the project. While deciding upon the matter the Commission disposed of the petition vide its order dated 9.4.2013 allowing the review on both the issues. Further Petition No. 208/GT/2013 was filed by the petitioner for revision of tariff determined by order dated 9.4.2013 in Review Petition No. 16/RP/2012 for the period 2009-14, after truing up exercise based on the actual



additional capital expenditure for the years 2010-11 (21.3.2011 to 31.3.2011), 2011-12 and 2012-13 in accordance with the 2009 Tariff Regulations. During the pendency of the above petition, the petitioner again filed Petition No. 305/GT/2014 for revision of tariff in respect of the generating station for the period from 21.3.2011 to 31.3.2014 after truing-up, based on the actual additional capital expenditure incurred for the said period. The Commission disposed of both the petitions with Petition Nos. 208/GT/2013 and 305/GT/2014 through a combined order dated 31.8.2015. Aggrieved by the order dated 31.8.2015, the petitioner filed Review Petition No. 26/RP/2015 seeking review on account of error apparent on the face of the record pertaining to "Calculation of the amount allowed for capitalization of initial spares as per the ceiling limit of 2.50% of original project cost". The Commission allowed the review vide its order dated 20.6.2016 in Petition No. 26/RP/2015 and revised the annual fixed charges determined by order dated 31.8.2015 considering the capital cost of ₹ 250011.40 lakh as on 31.3.2014. The capital cost and annual fixed charges approved by the said order dated 20.6.2016 is as under:

### Capital Cost

	(₹ in lakh)			
	2010-11 (21.3.2011 to 31.3.2011)	2011-12	2012-13	2013-14
Opening Capital Cost	217105.95	219395.50	231370.65	239675.16
Add: Additional capital expenditure	2289.55	11975.14	8304.51	10336.23
<b>Closing Capital Cost</b>	<b>219395.50</b>	<b>231370.65</b>	<b>239675.16</b>	<b>250011.40</b>
<b>Average Capital Cost</b>	<b>218250.73</b>	<b>225383.07</b>	<b>235522.90</b>	<b>244843.28</b>

### Annual Fixed Charges

	(₹ in lakh)			
	2010-11 (21.3.2011 to 31.3.2011)	2011-12	2012-13	2013-14
Return on Equity	14693.14	15004.72	15698.20	16722.16
Interest on Loan	14181.50	14675.66	14220.61	13815.54
Depreciation	11450.32	11825.76	12176.98	12684.34
Interest on Working Capital	2085.02	2129.69	2158.93	2202.15
O&M Expenses	6870.00	7265.00	7680.00	8120.00
Cost of secondary fuel oil	1448.75	1452.72	1448.75	1448.75
<b>Total</b>	<b>50728.72</b>	<b>52353.55</b>	<b>53383.47</b>	<b>54992.95</b>



3. Before we proceed to determine the tariff of the generating station for the period of 2014-19, we intend to rectify an inadvertent error in the computation of O&M expenses of the generating station issued vide order dated 31.8.2015. Korba Super Thermal Power Station Stage-III consisting of one unit of 500 MW, is an expansion project to the existing Korba Super Thermal Power Station Stage-I & II, also consisting of three units of 500 MW each. Accordingly, the O&M expenses of Korba STPS Stage III was required to be determined in accordance with the proviso to Regulation 19(a) of the 2009 Tariff Regulations which provides the following normative O&M expenses for 500 MW coal based and lignite based generating stations, as under: -

<i>(₹ in lakh/MW)</i>				
<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
13.00	13.74	14.53	15.36	16.24

Provided that the above norms shall be multiplied by the following factors for additional units in respective unit sizes for the units whose COD occurs on or after 1.4.2009 in the same station:

200/210/250 MW	Additional 5 <sup>th</sup> and 6 <sup>th</sup> units	0.90
	Additional 7 <sup>th</sup> and more units	0.85
300/330/350 MW	Additional 4 <sup>th</sup> and 5 <sup>th</sup> units	0.90
	Additional 6 <sup>th</sup> and more units	0.85
500 MW and above	Additional 3 <sup>rd</sup> and 4 <sup>th</sup> units	0.90
	Additional 5 <sup>th</sup> and more units	0.85

4. As per the above provision, the O&M expenses of the units of this generating station which were commissioned after 1.4.2009 were required to be worked out by multiplying the normative O&M expenses with a factor of 0.9. The Commission in its order dated 31.8.2015 had inadvertently omitted to apply the said proviso under Regulation 19(a) while determining O&M expenses of this generating station which has resulted in the allowing O&M expenses in excess of what was admissible under Regulation 19(a) read with proviso thereunder.

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



under: -

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

6. The above provision enables the Commission to correct any accidental omission or error in an order at any time on its own motion. Hence, we consider it appropriate to correct the inadvertent omission in computation of O&M expenses of this generating station which was allowed vide orders dated 31.8.2015. Accordingly, in exercise of our power under Regulation 103(A) of Conduct of Business Regulations, the year-wise normative O&M expenses of this generating station for the period from 21.3.2011 to 31.3.2014 is worked out in accordance with the proviso under Regulation 19(a) of the 2009 Tariff Regulations (by multiplying the normative O&M expenses with a factor of 0.9) as allowed as under:

(₹ in lakh/MW)			
2010-11 (21.3.2011 to 31.3.2011)	2011-12	2012-13	2013-14
6183.00	6538.50	6912.00	7308.00

7. The O&M expenses worked out as above shall be admissible in respect of the generating station for the period 2009-14 in supersession of the O&M expenses allowed vide orders dated 31.8.2015.

8. Consequent upon revision of O&M expenses as above, the components of annual fixed charges of the generating station as allowed in order dated 31.8.2015 is revised as under:

#### Receivables

(₹ in lakh)				
	2010-11 (21.3.2011 to 31.3.2011)	2011-12	2012-13	2013-14
Variable charges – 2 Months	4749.68	4762.70	4749.68	4749.68
Fixed charges – 2 Months	8334.51	8598.40	8762.79	9023.33
<b>Total</b>	<b>13084.20</b>	<b>13361.10</b>	<b>13512.47</b>	<b>13773.02</b>



9. Interest on working capital allowed to the generating station in order dated 31.8.2015 is revised as under:

	(₹ in lakh)			
	<b>2010-11 (21.3.2011 to 31.3.2011)</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Cost of coal for 1.1/2 months	3562.26	3572.02	3562.26	3562.26
Cost of secondary fuel oil for 2 months	241.46	242.12	241.46	241.46
O & M expenses	515.25	544.88	576.00	609.00
Maintenance Spares	1236.60	1307.70	1382.40	1461.60
Receivables	13084.20	13361.10	13512.47	13773.02
<b>Total Working Capital</b>	<b>18639.77</b>	<b>19027.81</b>	<b>19274.59</b>	<b>19647.34</b>
Rate of Interest	11.00%	11.00%	11.00%	11.00%
<b>Total Interest on Working capital</b>	<b>2050.37</b>	<b>2093.06</b>	<b>2120.21</b>	<b>2161.21</b>

10. Based on the above, the annual fixed charges allowed to the generating station for the period from 21.3.2011 to 31.3.2014 stands revised as under:

	(₹ in lakh)			
	<b>2010-11 (21.3.2011 to 31.3.2011)</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Return on Equity	14693.14	15004.72	15698.20	16722.16
Interest on Loan	14181.50	14675.66	14220.61	13815.54
Depreciation	11450.32	11825.76	12176.98	12684.34
Interest on Working Capital	2050.37	2093.06	2120.21	2161.21
O&M Expenses	6183.00	6538.50	6912.00	7308.00
Cost of secondary fuel oil	1448.75	1452.72	1448.75	1448.75
<b>Total</b>	<b>50007.07</b>	<b>51590.41</b>	<b>52576.74</b>	<b>54140.00</b>

11. The annual fixed charges allowed as above shall be adjusted in terms of our directions contained in order dated 31.8.2015.

#### **Approval of tariff for the period 2014-19**

12. The petitioner vide its affidavit dated 13.8.2014 has filed the instant petition for determination of tariff for Korba Super Thermal Power Station Stage-III (1x500 MW) for the period 2014-19 in



accordance with the provisions of the 2014 Tariff Regulations. The capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 in this petition are as under:

### Capital Cost

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	251264.07	252609.07	260679.07	262099.07	262499.07
Add: Additional capital expenditure	1345.00	8070.00	1420.00	400.00	0.00
<b>Closing Capital Cost</b>	<b>252609.07</b>	<b>260679.07</b>	<b>262099.07</b>	<b>262499.07</b>	<b>262499.07</b>
<b>Average Capital Cost</b>	<b>251936.57</b>	<b>256644.07</b>	<b>261389.07</b>	<b>262299.07</b>	<b>262499.07</b>

### Annual Fixed Charges

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	13035.20	13278.76	13524.27	13571.35	13581.70
Interest on Loan	12850.39	11940.58	11022.58	9723.35	8261.02
Return on Equity	15402.26	15690.05	15980.14	16035.77	16048.00
Interest on Working Capital	2857.32	2890.25	2918.22	2933.66	2946.15
O&M Expenses	9692.00	10304.44	10953.71	11645.23	12379.46
<b>Total</b>	<b>53837.16</b>	<b>54104.09</b>	<b>54398.92</b>	<b>53909.36</b>	<b>53216.33</b>

13. 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 respondent, Madhya Pradesh Power Management Corporation Ltd. has filed its replies in the matter and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner based on the submissions of the parties and the documents available on record, as discussed in the subsequent paragraphs.

### Capital Cost as on 1.4.2014

14. Regulation 9 of the 2014 Tariff Regulations provides as under:

**“9. Capital Cost:** (1) *The Capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects.*

(2) *The Capital Cost of a new project shall include the following:*

- a) *the expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*
- b) *Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds*



- deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*
- c) Increase in cost in contract packages as approved by the Commission;*
  - d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;*
  - e) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;*
  - f) expenditure on account of additional capitalization and de-capitalisation determined in accordance with Regulation 14 of these regulations;*
  - g) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and*
  - h) adjustment of any revenue earned by the transmission licensee by using the assets before COD.*

...

*(6) The following shall be excluded or removed from the capital cost of the existing and new project:*

- a) The assets forming part of the project, but not in use;*
- b) Decapitalisation of Asset;*
- c) In case of hydro generating station any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State government by following a two stage transparent process of bidding; and*
- d) the proportionate cost of land which is being used for generating power from generating station based on renewable energy:*

*Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation;”*

15. The annual fixed charges claimed in the petition is based on opening capital cost of ₹251264.07 lakh as on 1.4.2014, as against the closing capital cost of ₹250011.40 lakh as on 31.3.2014 as admitted by the Commission vide order dated 20.6.2016 in Petition No. 26/RP/2015. The closing capital cost as on 31.3.2014 as admitted by the Commission vide order dated 20.6.2016 in Petition No. 26/RP/2015 has been considered as the opening capital cost for the purpose of determination of tariff for the period 2014- 19.

### **Extension of Cut-Off Date**

16. The petitioner in its petition has prayed to condone the delay in completion of balance of works and allow capitalization of the same for the tariff purpose during the tariff period 2014-19 and extend cut-off date till 31.3.2016 under Regulation 54 i.e. ‘Power to Relax’ of the 2014 Tariff





Regulations. The petitioner has not submitted any detailed justification towards extension of cut-off date. We are therefore not inclined to allow any extension of cut-off date.

### **Projected Additional Capital Expenditure during period 2014-19**

17. 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 obsolescence 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.”

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

(₹ in lakh)

Sl. No.	Package Description	Claimed					Total
		2014-15	2015-16	2016-17	2017-18	2018-19	
1	Hydrogen Generation Building	280.00	0.00	0.00	0.00	0.00	280.00
2	Hydrogen Generation Plant	395.00	0.00	0.00	0.00	0.00	395.00
3	D-Type Quarters	220.00	0.00	0.00	0.00	0.00	220.00
4	Ash Dyke Raising	450.00	400.00	500.00	400.00	0.00	1,750.00
5	Railway Siding for Ash SILO	0.00	720.00	0.00	0.00	0.00	720.00
6	Service Building	0.00	950.00	0.00	0.00	0.00	950.00
7	Wagon Tripler	0.00	4,500.00	0.00	0.00	0.00	4,500.00
8	Associated Railway Works	0.00	1,500.00	0.00	0.00	0.00	1,500.00
9	Simulator Package	0.00	0.00	920.00	0.00	0.00	920.00
	<b>Total Additional Capitalization Claimed</b>	<b>1,345.00</b>	<b>8,070.00</b>	<b>1,420.00</b>	<b>400.00</b>	<b>0.00</b>	<b>11,235.00</b>

19. The Commission vide its Record of Proceedings (RoP) dated 28.6.2016 had directed the petitioner to submit approval of the Board of Directors of the petitioner's company or any other competent authority, along with delegation of powers for the projected additional capital expenditure claimed. The petitioner vide affidavit dated 9.8.2016 submitted that all works for additional capitalization during 2014-19 except the work of Wagon Tippler and associated Railway Works pertain to original scope of work. Works within original scope have been approved by the Board of



Directors through investment approval. It further submitted that Board of Director has conferred Delegation of Power (DOP) to the personnel depending on their designation / level in the management for approval of the capital expenditure to be incurred / proposed to be incurred. The designated employees exercise their power as per DOP for approval of such expenditure and need no further approval from the Board of Directors of the company. Accordingly, the expenditure for Wagon Tippler and associated Railways works have been approved by CMD, NTPC as per provisions of DOP. The projected additional capital expenditure claimed by the petitioner is discussed in the succeeding paragraphs.

### **Hydrogen Plant Building and Hydrogen Generation Plant**

20. The petitioner has projected and claimed additional capital expenditure of ₹280.00 lakh in 2014-15 and ₹395.00 lakh in 2014-15 for Hydrogen Generation Plant on cash basis under Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations. In justification the petitioner has submitted that Hydrogen Plant Building was the part of original contract for CW Systems & Off sites (CWOS) CMI Works Package, which was awarded to M/S SPML on 20.3.2007. However, after execution of work for certain period of time the package went under arbitration since 11.6.2010 on account of repetitive unjustified claim of M/S SPML for escalation in price of Items beyond 20% of award value in line with General Conditions of Contract (GCC). The petitioner submitted that the arbitrator suspended arbitration proceedings of the CWOS package on certain grounds on 15/03/11. The petitioner further submitted that the agency drastically slowed down the works of the package & subsequently stopped work in Hydrogen Generation building in spite of repeated reminders. The petitioner submitted that NTPC left no stone unturned to pursue the issue with the agency for adequate mobilization of man power to execute the work. However, despite high level meetings, discussions and repeated follow-ups, the agency was non-responsive for execution of work. The petitioner submitted that it had finally issued contractual notice to offload vide letter dated 22.10.2013. The petitioner further submitted that the proposal for re-awarding the balance works was initiated and due to poor response, the Bid Opening Date (BOO) was extended 3 times &



finally, bid was opened on single response basis and subsequently awarded on 24.10.2013. The petitioner submitted that the work could commence in full swing only from January 2014. The petitioner further submitted that it has timely awarded the contract on 07.11.2007 to M/S Eastern Electrolytes for Hydrogen Generation Plant and the equipment were received at site by December 2010. However, being the sequential activity of the civil work of Hydrogen Plant, the installation of Hydrogen Generation machineries in the absence of building could not be done and got delayed. The petitioner further submitted that envisaging the delay on civil front the agency withheld supply of indigenous items and spares worth ₹98 lakh so that the warranty coverage remains effective since commissioning of such equipment. The petitioner submitted that the estimated expenditure to be incurred including civil works is ₹675 lakh. The petitioner further submitted that it was making all out efforts for completion of work by cut off date i.e. 31 03 2014 but due to reasons as brought out above the delay is not attributable to the petitioner and has therefore requested the Commission to allow the same to be capitalized beyond cut off date exercising its power under the Clause 54 of the 2014 Regulations i.e. 'Power to Relax'.

21. The Respondent No. 1, Madhya Pradesh Power Management Company Ltd. (MPPMCL) in its reply dated 1.7.2016 has submitted that since the cut off date has already expired on 31.3.2014, hence, the provisions of the 2014 Tariff Regulations cannot be made applicable in the instant case. It further submitted that Regulation 54 'Power to Relax' has to be made applicable in the rarest condition to ensure implementation of the provisions of the Regulations in true spirit of letter and words and to avoid frequent infringement with provisions of Regulations and requested the Commission not to allow the same.

22. The petitioner in its rejoinder dated 22.7.2016 has submitted that the works of Hydrogen Generation Plant Building and Hydrogen Generation Plant are the balance works under original scope of works which got spilled over the cut off date on account of various reasons beyond the control of the petitioner as mentioned in the Petition. Further the balance works, not immediately affecting the generation are taken up at later stage also protects the beneficiaries from front loading



of the tariff. The petitioner submitted that these works are necessarily required for operation of stations for 25 years and the petitioner should not be penalized for this delay. The petitioner further submitted that since the total expenditure pertaining to this balance of works are less than 1% of approved capital cost, the petitioner has approached the Commission to allow these expenditure under Regulation 14 (1)(ii) and Regulation 54 of the 2014 Tariff Regulations.

23. We have examined the matter in view of the submissions of the petitioner and since the additional capital expenditure incurred is under original scope of works and is required for successful operation of the plant and the benefits of the same shall be utilised by the beneficiaries hence we are inclined to allow the same and therefore invoke Regulation 54 of the 2014 Tariff Regulations and relax Regulation 14(1)(ii) of the 2014 Tariff Regulations.

### **Railway Sliding for Ash SILO**

24. The petitioner has projected additional capital expenditure of ₹720.00 lakh in 2015-16 for Railway Siding for Ash SILO on cash basis under Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations. In justification, the petitioner has submitted that as per the original scope of work, the Railway Siding was envisaged for disposal of ash from ash SILO to CGSPCL (Chhattigarh State Power Supply Company Limited) siding by laying the railway track. The petitioner further submitted that the work was awarded to M/S Rites, the sole contractor authorized to carry out such work inclusive of design, engineering, procurement, supply and commissioning on 2.2.2007. Major works like procurement & transportation of 285 MT rails from SAIL, Earth work formation and providing connection to TG line with existing MGR system etc were completed in FY 2008-09. The petitioner further submitted that being an expansion project it is surrounded by various other projects in the close vicinity like Balco Captive Power Plant (BCCP. owned by Sterlite), Chhattisgarh State Power Corporation Ltd. (CGSPCL) etc. and since the region is power hub of Chattisgarh the erection and commissioning of outside facilities had to face the constraints of way because of already existing facilities of these projects like ash pipelines, water pipelines, overhead transmission lines etc. The



petitioner further submitted that overcoming these problems during the execution of work on ground in itself was challenging job and various hindrances and difficulties were faced while executing the works of facilities development outside the plant area. Due to modifications like re-routing of railway track and sudden appearance of problems like agitation from villagers delayed the execution of work beyond cut off date. The petitioner has also cited some technical difficulties and right of way issues due to presence of other plants and nearby villages in the vicinity as reasons for delay in completion of works within the cut off date and has stated that the delay is not attributable to the petitioner and prayed before the Commission to allow the same under Regulation 1(ii) and Regulation 54 i.e. 'Power to Relax' of the 2014 Tariff Regulations.

25. The Respondent No. 1 MPPMCL in its reply has submitted that since the cut off date has already been expired on 31.3.2014, hence, the provisions of the 2014 Tariff Regulations cannot be made applicable in the instant case. It further submitted that Regulation 54 'Power to Relax' has to be made applicable in the rarest condition to ensure implementation of the provisions of the Regulations in true spirit of letter and words and to avoid frequent infringement with provisions of Regulations and requested the Commission not to allow the same.

26. The petitioner in its rejoinder dated 22.7.2016 has submitted that the works of Railway siding for Ash SILO are the balance works under original scope of works which got spilled over the cut off date on account of various reasons beyond the control of the petitioner as mentioned in the Petition. Further, the petitioner submitted that balance works, not immediately affecting the generation are taken up at later stage also protects the beneficiaries from front loading of the tariff. According to the petitioner these works are necessarily required for operation of stations for 25 years and the petitioner should not be penalized for this delay. The petitioner has submitted that since the total expenditure pertaining to this balance of works are less than 1% of approved capital cost, the petitioner has approached the Commission to allow these expenditure under Regulation 14 (1)(ii) and Regulation 54 of the 2014 Tariff Regulations.



27. We have examined the matter in view of the submissions of the petitioner and since the additional capital expenditure incurred is under original scope of works and is required for successful operation of the plant and the benefits of the same shall be utilised by the beneficiaries hence we are inclined to allow the same and therefore invoke Regulation 54 of the 2014 Tariff Regulations and relax Regulation 14(1)(ii).

### **Service Building**

28. The petitioner has projected additional capital expenditure of ₹950.00 lakh in 2015-16 for Service Building on cash basis under Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations. In justification, the petitioner has submitted that civil work of Service Building was the part of original contract for Main plant civil works awarded to M/S SPML vide LOA dated 9.9.2006. During the initial years, M/S SPML was carrying out works mainly in priority areas for unit synchronization, COD and many other important left over jobs but later on the agency went for arbitration seeking higher rates for Structural works and thereafter stopped the work. The petitioner has submitted to have made all out efforts to pursue the matter with MIS SPML so that the work may be completed within cut off date, but the agency did not turn up. The petitioner further submitted that after issuance of contractual notice to M/S SPML, proposal for off loading balance works were initiated on 21.5.2012 and processed through NIT dated 27.1.2012. The petitioner further submitted that due to poor response, the bid opening date was extended 4 times & finally 2(Two) bids were opened on 27.02.13. After evaluation of bid documents by Tender Committee (TC), approval for opening both bids was accorded on 26.4.13. However, the process of bidding and tendering did not result into award of balance work and had to be extended. The petitioner for the reasons discussed above has prayed before the Commission to allow capitalization beyond cut-off date on this count exercising its power under Regulation 54 i.e. 'Power to Relax'.

29. The Respondent No. 1 MPPMCL in its reply has submitted that since the cut off date has already been expired on 31.3.2014, hence, the provisions of the 2014 Tariff Regulations cannot be made applicable in the instant case. It has further submitted that Regulation 54 'Power to Relax' has





to be made applicable in the rarest condition to ensure implementation of the provisions of the Regulations in true spirit of letter and words and to avoid frequent infringement with provisions of Regulations and requested the Commission not to allow the same.

30. The petitioner in its rejoinder dated 22.7.2016 has submitted that the works of Service Building are the balance works under original scope of works which got spilled over the cut off date on account of various reasons beyond the control of the petitioner as mentioned in the Petition. Further the petitioner has submitted that balance works, not immediately affecting the generation are taken up at later stage also protects the beneficiaries from front loading of the tariff. The petitioner submitted that these works are necessarily required for operation of stations for 25 years and the petitioner should not be penalized for this delay. The petitioner has submitted that since the total expenditure pertaining to this balance of works are less than 1% of approved capital cost, the petitioner has approached the Commission to allow these expenditure under Regulation 14 (1)(ii) and Regulation 54.

31. We have examined the matter in view of the submissions of the petitioner and since the additional capital expenditure incurred is under original scope of works, hence we are inclined to allow the same and therefore invoke Regulation 54 of the 2014 Tariff Regulations and relax Regulation 14(1)(ii).

#### **Civil Work of Permanent Township (PTS): D-Type Quarters**

32. The petitioner has projected additional capital expenditure of ₹220.00 lakh in 2014-15 for D-Type Quarters on cash basis under Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations. In justification, the petitioner has submitted that the contract for the Civil Work of Permanent Township (PTS) was awarded to M/S Ober Construction Enterprises Pvt. Ltd. vide LOA dated 31.3.2010 for 74 no of 'D' type quarters. The work for the construction of the quarters started on 15.2.2010, but was delayed due to late clearance from forest department, for cutting the trees in the area earmarked for the construction of quarters. Further, the petitioner submitted that during the





construction period there was shortage of sand required for construction work during the December, 2013 onwards due to the ban imposed by District Authority on sand quarry. Due to delay in clearance from forest department and due to shortage of main building material the agency could not complete the quarters within the cut off date. It has also submitted that out of 74 no of 'D' type quarters 64 no of 'D' type quarters have been completed and handed over by March 2014. The petitioner has submitted that the balance quarters are at near completion with final finishing jobs pending and the same is expected to be completed during FY 2014-15 and since the petitioner was making all out efforts for completion of work by cut off date i.e. 31.3.2014, but due to reasons not attributable to it as mentioned above could not be completed before cut off date. It has prayed to allow capitalization beyond cut off date on this count exercising its power under Regulation 14 (1)(ii) and Regulation 54 i.e. 'Power to Relax' of the 2014 Tariff Regulations.

33. The Respondent No. 1 MPPMCL in its reply has submitted that since the cut off date has already been expired on 31.3.2014, hence, the provisions of the 2014 Regulations cannot be made applicable in the instant case. It has further submitted that Regulation 54 'Power to Relax' has to be made applicable in the rarest condition to ensure implementation of the provisions of the Regulations in true spirit of letter and words and to avoid frequent infringement with provisions of Regulations and requested the Commission not to allow the same.

34. The petitioner in its rejoinder dated 22.7.2016 has submitted that the Civil Work of Permanent Township (PTS): D-Type Quarters are the balance works under original scope of works which got spilled over the cut off date on account of various reasons beyond the control of the petitioner as mentioned in the Petition. Further, the petitioner has submitted that balance works, not immediately affecting the generation are taken up at later stage also protects the beneficiaries from front loading of the tariff. The petitioner submitted that these works are necessarily required for operation of stations for 25 years and the petitioner should not be penalized for this delay. The petitioner further submitted that since the total expenditure pertaining to this balance of works are less than 1% of



approved capital cost, the petitioner has approached the Commission to allow these expenditure under Regulation 14 (1)(ii) and Regulation 54 of the 2014 Tariff Regulations.

35. We have examined the matter in view of the submissions of the petitioner. The petitioner has submitted that the delay was on account of delay in receiving clearance from the forest department and shortage of construction material. It is observed that the petitioner has not submitted any documentary evidence substantiating the delay on account of forest clearance and shortage of construction material. Further, the petitioner has also not submitted how much delay is on account of which factor. In absence of the same we are not in position to carry out prudence and therefore have not considered the additional capital expenditure. The petitioner however is at liberty to approach the Commission with documentary evidence at the time of truing up.

### **Ash Dyke Raising**

36. The petitioner has projected additional capital expenditure of ₹450.00 lakh in 2014-15, ₹400.00 lakh in 2015-16, ₹500.00 lakh in 2016-17, ₹400.00 lakh in 2017-18, for Ash Dyke Raising on cash basis under Regulation 14(3)(iv) of the 2014 Tariff Regulations.

37. The Respondent No. 1 MPPMCL in its reply has submitted that Regulation 14(3)(iv) provides for capitalization of deferred works relating to ash pond and ash handling system in the original scope of work. This expenditure does not qualify under Regulation 14(3)(iv) unless the petitioner submits documentary evidence that it belongs to original scope of work.

38. The petitioner in its rejoinder dated 22.7.2016 has submitted that the Ash Dyke Raising is required for ash disposal during the life of the plant, which is covered under original scope of work. Further, it has submitted that since these works are executed in phased manner at intermittent intervals during the life of the plant as and when necessitated, no firm time frame can be envisaged or fixed for the same. This has been recognized in the Statement of Reasons for the 2009 Tariff Regulations and is equally acceptable for any tariff period including 2014-19. The petitioner has also submitted that the raising of Ash Dyke instead of creating an Ash Dyke of full capacity at one go is



gradual development of the asset during the life of the plant as and when necessitated. Accordingly same has been claimed under Regulation 14(3)(iv) of the 2014 Tariff Regulations. The petitioner has submitted that it also helps in avoiding unnecessary front loading of tariff by not creating an infrastructure, which is developed during operational life of the plant, slowly and gradually as required. It has also submitted that the original cost estimate of the ash related works was based on the cost index of 4<sup>th</sup> quarter of FY 2005-06, which will further undergo the cost escalation as per the rate of inflation in the country. The petitioner submitted that the Ash Dyke Raising work, projected during the period 2014-19, pertains to original scope of work, being executed gradually, as per the requirement. The petitioner further submitted that the exact capacity of the ash dyke is difficult to be envisaged in the beginning of the project, because the life of the ash dyke depends upon the quality and quantity of coal (depending upon GCV, ash percentage etc) being used in the generating station, which may vary from time to time.

39. The Commission vide its Record of Proceedings (RoP) dated 28.6.2016 had directed the petitioner for details of projected expenditure of Ash Dyke Raising, along with scope of work and justification for undertaking such expenditure of ₹1750 lakh along with the details as to when the ash dykes raising work will be completed and for how many years this raising would cater to the ash handling system of the station.

40. The petitioner vide affidavit dated 9.8.2016 replied that the scope of work includes raising of Lagoon IIIB 1<sup>st</sup> Raising, Lagoon IIIA 2<sup>nd</sup> Raising, Lagoon IIIB 2<sup>nd</sup> Raising and Lagoon IIIA 3<sup>rd</sup> Raising. The projected expenditure of ₹1750 lakh corresponds to these four raisings of ash dykes. The petitioner also submitted the following details about the Raisings.

Sl. No.	Description	Amount (in ₹ lakh)	Projected Capitalization Period	Expected Utilization Period	Period of Service
1	Lagoon IIIB 1 <sup>st</sup> Raising	450	2014-15	Utilized	Completed
2	Lagoon IIIA 2 <sup>nd</sup> Raising	400	2015-16	Utilized	Completed
3	Lagoon IIIB 2 <sup>nd</sup> Raising	500	2016-17	2016-17	Apr' 16- Sep'16
4	Lagoon IIIA 3 <sup>rd</sup> Raising	400	2017-18	2016-17*	Oct' 16- Mar' 17*
	<b>Total</b>	<b>1750</b>			

*\* It is expected that work shall be executed earlier for early utilization of the capacity creation by Ash Dyke Raising*



41. We have examined the matter in view of the submissions made by the petitioner. With regards to 'Lagoon IIIA 3<sup>rd</sup> Raising' it is not clear as to how the petitioner is going to utilize the same in 2016-17 when the same is projected to be capitalized in 2017-18. We have therefore not considered additional capital expenditure with regard to the 'Lagoon IIIA 3<sup>rd</sup> Raising' projected in 2017-18. However, the petitioner is at liberty to claim the same as per actual at the time of truing up.

### **Simulator**

42. The petitioner has projected additional capital expenditure of ₹920.00 lakh in 2016-17 for Simulator package on cash basis under Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations. In justification, the petitioner has submitted that initially, the provision of Simulator package was not there in FR. However, in view of installation of technologically advanced unit of 500 MW in Korba, the simulator training facility for O&M employees was felt necessary for successful operation of the plant ensuring supply of power to beneficiaries on sustainable basis and hence the same has been incorporated in the revised cost estimate of Korba STPS Stage-III. The petitioner has further submitted that the work is expected to be completed in 2016-17.

43. The Respondent No.1 MPPMCL in its reply dated 1.7.2016 has submitted that the COD of the KSTPS Stage III is 21.03.2011 and accordingly the cut off date for the plant is 31.03.2014. Thus, the expenditure incurred during 2016-17 on Simulator Package does not come under the purview of Regulation 14(1) (ii), which is applicable for the expenditures incurred up to the cut off date. Further, the Respondent has submitted that claim of expenditure of ₹920 lakh on simulator package just for training facility for O&M employees of the plant appears to be on very much higher side and thus the claim of petitioner is not justifiable and submitted that the expenditure on training facilities of O&M employees has to be catered from the O&M expenses being recovered from the beneficiaries by the petitioner and therefore should not be allowed.

44. In response to the above the petitioner in its rejoinder dated 22.7.2016 has submitted that it has already prayed for the extension of cut off date by two (2) years under Regulation 54 i.e. 'Power



to relax' for the works pertaining to original scope of work spilling beyond the cut off date. The petitioner has submitted that since the expenditure against the balance works under the original scope of work is less than 1% of the approved project cost, the petitioner has claimed these works under Regulation 14 (1)(ii) and Regulation 54 of the 2014 Tariff Regulations.

45. We have gone through the submissions of the petitioner and respondents. We are of the view that since the simulator training facility could be used for training of personnel of other stations as well, it would be more reasonable that this cost is booked under corporate expenses and is allocated to various other generating stations and form part of O&M expenses. We have therefore not considered the same separately.

### **Wagon Tippler and Associated Railway Works**

46. The petitioner has projected additional capital expenditure of ₹4500.00 lakh in 2015-16 for Wagon Tippler and ₹1500 lakh for 2015-16 for associated Railway Works on cash basis under Regulation 14(3)(ii) and Regulation 14(3)(x) of the 2014 Tariff Regulations.

47. The Respondent No. 1 MPPMCL in its reply has submitted that the petitioner has never been fell short of normative availability during 2012-13 to 2015- 16. The petitioner is imposing burden of ₹6000 lakh (₹4500 lakh + ₹1500 lakh) on the beneficiary simply on the basis of apprehension for non-availability of coal, which has been proved to be without any basis in view of the data of cumulative NAPAF for various financial years. Thus, there is no proper justification for claiming capitalization of change in law or modification in fuel receiving system.

48. In response to the above the petitioner in its rejoinder dated 22.7.2016 has submitted that as per the Presidential Directives for new coal supply agreements (CSA), the fuel security for the instant station gets ensured only up to 68% of PLF/PAF and it is not sufficient to achieve Normative Annual Plant Availability Factor (NAPAF) of 83%, necessary for full fixed charge recovery, as per the 2014 Tariff Regulations. In such a scenario, balance fuel is transported from non-linked sources



through Box-N wagons. This necessitates the facility of unloading of these wagons at the station end. In view of this, the petitioner has submitted that it has claimed the expenditure for Wagon Tippler under Change in law as well as under Fuel Receipt System Augmentation i.e. Regulation 14(3)(ii) and 14(3)(x) respectively.

49. We have examined the matter it is observed that the petitioner in its submissions have not substantiated the shortage of coal experienced by the petitioner and its impact on the plant availability factor in past. As also pointed out by the respondent, the plant availability factor of the plant has been above the normative availability in the past. It is observed that the PAF for the station has been well above the normative PAF since 2012-13 onwards. The additional capital expenditure on account of shortage of coal is not justified and accordingly, not considered for the purpose of tariff at this stage. However, the petitioner is directed to submit the details of the coal sourced from 2012-13 onwards including coal made available from various sources and shortage experienced by the petitioner. Same will be reviewed at the time of true up.

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

<i>(₹ in lakh)</i>						
<b>Head of Work/Equipment</b>	<b>Regulation</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Hydrogen Generation Building	Reg. 14 (1) (ii) with Reg. 54	280.00	0.00	0.00	0.00	0.00
Hydrogen Generation Plant		395.00	0.00	0.00	0.00	0.00
Ash Dyke Raising	Reg. 14 (3)(iv)	450.00	400.00	500.00	0.00	0.00
Railway Siding for Ash SILO	Reg. 14 (1) (ii) with Reg. 54	0.00	720.00	0.00	0.00	0.00
Service Building		0.00	950.00	0.00	0.00	0.00
<b>Total Additional Capitalization Allowed</b>		<b>1125.00</b>	<b>2070.00</b>	<b>500.00</b>	<b>0.00</b>	<b>0.00</b>

51. Accordingly, the capital cost considered for the purpose of tariff for 2014-19 is as under:

<i>(₹ in lakh)</i>					
<b>Gross Block</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Opening capital cost	250011.40	251136.40	253206.40	253706.40	253706.40
Total Additional Capitalization	1125.00	2070.00	500.00	0.00	0.00
<b>Closing Gross Block</b>	<b>251136.40</b>	<b>253206.40</b>	<b>253706.40</b>	<b>253706.40</b>	<b>253706.40</b>
<b>Average Gross Block</b>	<b>250573.90</b>	<b>252171.40</b>	<b>253456.40</b>	<b>253706.40</b>	<b>253706.40</b>



## Debt-Equity Ratio

52. 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-equity 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 of 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 ratio 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.”*



53. Accordingly, the gross normative loan and equity amounting to ₹177245.23 lakh and ₹72766.16 lakh, respectively as on 31.3.2014 as considered in order dated 20.6.2016 in Petition No. Petition No. 26/RP/2015 has been considered as gross normative loan and equity as on 1.4.2014. The normative debt equity ratio of 70:30 has been considered in the case of additional capital expenditure. This is subject to truing-up in terms of the 2014 Tariff Regulations. The details of the debt:equity as on 1.4.2014 and for the additional capital expenditure considered for the purpose of tariff for the 2014-19 tariff period is as follows:-

(₹ in lakh)

	Capital cost upto COD 1.4.2014		Estimated completion cost including additional capitalization		Capital cost as on 31.3.2019	
	Amount	(%)	Amount	(%)	Amount	(%)
Debt	177245.23	70.89%	2586.50	70.00%	179831.73	70.88%
Equity	72766.16	29.11%	1108.50	30.00%	73874.66	29.12%
<b>Total</b>	<b>250011.40</b>	<b>100.00%</b>	<b>3695.00</b>	<b>100.00%</b>	<b>253706.39</b>	<b>100.00%</b>

### Return on Equity

54. 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.

55. 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.*

56. The petitioner has claimed return on equity considering base rate of 15.50% and effective tax rate of 23.9394% in the period 2014-19.

57. It is observed that the Regulation prescribe computation of effective tax rate on the basis of tax paid, still we deem it proper to allow grossing up on MAT rate considering the fact that the matter is getting decided in the year 2016-17. Accordingly, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to the year



2018-19 for the purpose of grossing up of base rate of 15.50%. Accordingly, the rate of Return on Equity works out to 19.610% for the year 2014-15 and 19.705% for the year 2015-16 onwards. This is however, subject to true-up. Accordingly, return on equity has been worked out as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Notional Equity- Opening	72766.16	73103.66	73724.66	73874.66	73874.66
Addition of Equity due to additional capital expenditure	337.50	621.00	150.00	0.00	0.00
Normative Equity-Closing	73103.66	73724.66	73874.66	73874.66	73874.66
Average Normative Equity	72934.91	73414.16	73799.66	73874.66	73874.66
Return on Equity (Base Rate) (%)	15.500	15.500	15.500	15.500	15.500
Tax Rate for the year (%)	20.961	21.342	21.342	21.342	21.342
Rate of Return on Equity (Pre Tax) (%)	19.610	19.705	19.705	19.705	19.705
<b>Return on Equity(Pre Tax) annualised</b>	<b>14302.54</b>	<b>14466.26</b>	<b>14542.22</b>	<b>14557.00</b>	<b>14557.00</b>

## Interest on Loan

58. 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 or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*

(5) *The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:*

*Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:*



*Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.*

*(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*

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

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

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

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

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

- (a) The gross opening loan of ₹177245.23 lakh as on 1.4.2014 has been considered.
- (b) Cumulative repayment of loan of ₹36831.48 lakh as on 31.3.2014 as considered in order dated 20.6.2016 in Petition No. 26/RP/2015 has been considered as on 1.4.2014.
- (c) Accordingly, the net normative opening loan as on 1.4.2014 works out to ₹140413.75 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 2014-19.



(f) In line with the provisions of the regulation, the weighted average rate of interest has been calculated applying the actual loan portfolio existing as on 1.4.2014 for the generating station. In case of loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The calculations for weighted average rate of interest on loan have been enclosed as Annexure-I to this order.

60. 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	177245.23	178032.73	179481.73	179831.73	179831.73
Cumulative repayment of loan up to previous year	36831.48	49795.89	62842.95	75956.50	89082.98
Net Loan Opening	140413.75	128236.84	116638.78	103875.23	90748.75
Addition due to additional capital expenditure	787.50	1449.00	350.00	0.00	0.00
Repayment of loan during the year	12964.41	13047.06	13113.55	13126.48	13126.48
Less: Repayment adjustment on account of de-capitalization	0.00	0.00	0.00	0.00	0.00
Add: Repayment adjustment on account of discharges corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00
Net Repayment	12964.41	13047.06	13113.55	13126.48	13126.48
Net Loan Closing	128236.84	116638.78	103875.23	90748.75	77622.27
Average Loan	134325.29	122437.81	110257.00	97311.99	84185.51
Weighted Average Rate of Interest of loan	9.5688%	9.5846%	9.6166%	9.5667%	9.3589%
<b>Interest on Loan</b>	<b>12,853.27</b>	<b>11,735.13</b>	<b>10,603.01</b>	<b>9,309.52</b>	<b>7,878.82</b>

## Depreciation

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

**“27. Depreciation:** (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.



*Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.*

*(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.*

*(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:*

*Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:*

*Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long term power purchase agreement at regulated tariff:*

*Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.*

*(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.*

*(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-II** to these regulations for the assets of the generating station and transmission system:*

*Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.*

*(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 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.”*

62. The cumulative depreciation amounting to ₹37002.18 lakh as on 31.3.2014 as considered in order dated 20.6.2016 in Petition No. 26/RP/2015 has been considered for the purpose of tariff. Thereafter, the value of freehold land 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 ₹186001.06 lakh.

63. Since as on 1.4.2014, the used life of the generating station is less than 12 years from the station COD, the depreciation shall be calculated by applying weighted average rate of depreciation for the year 2014-19.

64. The petitioner has claimed depreciation considering the weighted average rate of depreciation of 5.1739% for the period 2014-19, which has been calculated in conformity with the rates of depreciation as specified in Appendix-II of the 2014 Tariff Regulations. The same has been considered for calculating depreciation for the period 2014-19. Accordingly, depreciation has been computed as under:

65. The petitioner is directed to furnish the details regarding un-recovered depreciation as on 31.3.2014 at the time of truing-up of tariff in terms of the 2014 Tariff Regulations. Accordingly, depreciation has been computed as follows:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	2,50,011.40	2,51,136.40	2,53,206.40	2,53,706.40	2,53,706.40
Add: Additional Capital Expenditure	1,125.00	2,070.00	500.00	0.00	0.00
Closing Capital Cost	2,51,136.40	2,53,206.40	2,53,706.40	2,53,706.40	2,53,706.40
Average Capital Cost	250573.90	252171.40	253456.40	253706.40	253706.40
Value of freehold land	2,942.00	2942.00	2942.00	2942.00	2942.00
Depreciable value (excluding land)@ 90%	222868.71	224306.46	225462.96	225687.96	225687.96
Balance depreciable Value	185866.53	174339.87	162449.31	149560.76	136434.28



	2014-15	2015-16	2016-17	2017-18	2018-19
Rate of depreciation	5.1739%	5.1739%	5.1739%	5.1739%	5.1739%
<b>Depreciation (annualized)</b>	<b>12964.41</b>	<b>13047.06</b>	<b>13113.55</b>	<b>13126.48</b>	<b>13126.48</b>
Cumulative depreciation upto previous year	49966.59	63013.65	76127.20	89253.68	102380.16
Less: Cumulative depreciation adjustment on account of de-capitalization	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation (at the end of the period)	49966.59	63013.65	76127.20	89253.68	102380.16

## O&M Expenses

66. Regulation 29(1)(a) of the 2014 Tariff Regulations provides as under:

### **“29. Operation and Maintenance Expenses:**

(1) Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

(a) Coal based and lignite fired (including those based on Circulating Fluidised Bed Combustion (CFBC) technology) generating stations, other than the generating stations/units referred to in clauses (b) and (d):

(in Rs Lakh/MW)

Year	200/210/250 MW Sets	300/330/350 MW Sets	500 MW Sets	600 MW and above sets
FY 2014-15	23.90	19.95	16.00	14.40
FY 2015-16	25.40	21.21	17.01	15.31
FY 2016-17	27.00	22.54	18.08	16.27
FY 2017-18	28.70	23.96	19.22	17.30
FY 2018-19	30.51	25.47	20.43	18.38

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

500 MW and above	Additional 3 <sup>rd</sup> & 4 <sup>th</sup> units	0.90
	Additional 5 <sup>th</sup> & above units	0.85

...  
...”

67. The 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)				
2014-15	2015-16	2016-17	2017-18	2018-19
7200.00	7654.50	8136.00	8649.00	9193.50





68. The petitioner in its petition has prayed to allow revision of O&M charges including the revised salary of the employees with effect from 1.1.2017 as and when it is finalized.

69. The respondent No. 1, MPPMCL in its reply dated 1.7.2016 has submitted that since NTPC is a profit making Public Sector Company, it should bear the burden of wage revision of its employees. The respondent has submitted that the Commission has no control over the wage hike allowed by the petitioner to its employees and thus no blanket approval may be accorded for enhancement in O&M expenses at later stage. The respondent has further submitted that in light of the office memorandum dated 26.11.2008 issued by Ministry of Heavy Industries & Public Enterprises, it is clear that the petitioner has to bear the financial implication by its own and respondents are not liable to bear the burden under this count.

70. In response, the petitioner has submitted that NTPC is a public sector organization and the salary revision of its employees is carried out as per the recommendations of Department of Public Enterprises, GoI. The petitioner has further submitted that during finalization of the 2014 Tariff Regulations, various stakeholders has pointed out the issue of salary and wage revision and inclusion of the same in comprehensive manner for allowing the O&M expenses based on which the Commission was of the view that same shall be examined on case to case basis, balancing the interest of the generating stations and consumers. The petitioner has also submitted that no budgetary support has been sought by the petitioner for wage revision.

71. The O&M Expenses have been worked out as per the norms of O&M Expenses specified in the 2014 Tariff Regulations. As regards impact of wage revision, any application filed by the petitioner in this regard will be dealt with in accordance with the appropriate provisions of the 2014 Tariff Regulations.

## **Water Charges**

72. 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”*

73. In terms of the above Regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check of the details furnished by the petitioner.

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

<i>(₹ in lakh)</i>					
<b>Year</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Water charges claimed	1692.00	1799.44	1913.71	2035.23	2164.46

75. The petitioner in the instant petition has furnished the following details in respect of water charges such as type of cooling water system, water consumption, rate of water charges as applicable for 2013-14.

<b>Description</b>	<b>Remarks</b>
Type of Plant	Coal
Type of Cooling Water System	Closed Circuit Cooling Water System
Consumption of Water	15889320 CuM
Rate of Water Charges	₹9.26 / CuM for Apr ' 13 ₹10.65 / CuM from May 13 to Mar' 13
Total Water Charges	₹1674 lakh

76. In order to examine the trend of the actual water consumption and rate of water charges, the petitioner was directed vide ROP dated 28.6.2016 to furnish the details in respect of water charges such as contracted quantum of water and allocated quantity, actual water consumption from 2009-10 to 2013-14, along with rate of water charges, copy of notification(s) of water charges, actual



water charges paid to the Water Resource Department/ State Government duly certified by Auditor, type of cooling water system and justification for any variation in allocated quantity of water vis-a-vis actual consumption.

77. In response, the petitioner vide its affidavit dated 9.8.2016 submitted that the water agreement for the instant station including BALCO Captive Power Plant (BCPP) which is owned and operated by M/S Sterlite has been done based on allocation of water quantity on daily basis for 0.301 MCM and the aggregated billing for water consumption is carried out on monthly basis. The petitioner further submitted that if the actual drawl is less than contracted quantity, the minimum payment of water charges is to be made based on allocation equivalent to 90% of the monthly contracted quantity i.e. 9.166 MCM for Korba Stage-I&II , Korba STPS Stage-III & BCPP and if the actual drawl exceeds the contracted quantity on monthly basis, the water charges are payable @1.5 times of the applicable rate of water charges. The petitioner further submitted that the agreement of water for a thermal generating station is carried out based on Water Balance Diagram based on various considerations like temperature and relative humidity affecting rate of evaporation of water from raw water pond, Cooling Towers etc, blow-down for design Cycle of Concentration (COC) for circulating water, drift loss of cooling tower, steam loss in the cycle, level of generation etc. Accordingly, for the instant station, the petitioner has tied up daily quantum of water based on station peak requirement on account of various considerations including seasonal peak demand, so that any loss in generation due to shortage of water during such periods may not be allowed to happen. The petitioner submitted that the water requirement for 2600 MW (for Korba-I&II and Korba-III) @ 5 cubicmeter/hr/MW comes out to be 114 MCM/year, which shows that the contracted quantity of 110 MCM is reasonable.

78. The petitioner further submitted that the quantum of water consumed by the generating station is directly affected by the seasonal condition and generation level of the station which is visible in the monthly consumption details submitted by the petitioner, wherein, in certain months, the consumption of water for Korba Station is approaching the monthly contracted quantity (103%).



Therefore, in case, the contracted quantity is reduced, it is likely that there would be loss of generation due to reduced availability of water. The petitioner has submitted the details in respect of Water Charges for the period 2010-11 to 2013-14 comprising of monthly contracted quantity, monthly consumption of Korba station (Stage – I, II and III) and net payment pertaining to Korba station (Stage – I, II and III). The petitioner has submitted the notifications issued by Water Resource Dep., Govt. of Chhattisgarh etc. However, the petitioner has not submitted specific details with regard to allocation of water to Korba Stage III separately.

79. As per provisions of Regulation 29(2) of the 2014 Tariff Regulations, water charges are to be allowed separately. It was observed from the above that the petitioner has claimed water charges for the year 2014-15 and escalated the same @ of 6.35% on year to year for the period 2014-19 without any proper reasoning. The petitioner has also not furnished separate detailed information in regard to water allocation to Stage III. In this backdrop, the actual water charges have been computed on the basis of water consumption in the year 2013-14 at the rates applicable for March 2014. As the rates of water charges are fixed and therefore no escalation on water charges have been provided. Based on this, water charges allowed for the period 2014-19 are as under:

<i>(₹ in lakh)</i>	
<b>Year</b>	<b>Water Charges Allowed</b>
2014-15	1692.21
2015-16	1692.21
2016-17	1692.21
2017-18	1692.21
2018-19	1692.21

80. Accordingly, the water charges as claimed by the petitioner and allowed for the purpose of tariff is as under:

<i>(₹ in lakh)</i>					
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Water charges as claimed	1692.00	1799.44	1913.71	2035.23	2164.46
<b>Water charges as allowed</b>	<b>1692.21</b>	<b>1692.21</b>	<b>1692.21</b>	<b>1692.21</b>	<b>1692.21</b>



## Operational Norms

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

Target Availability (%)	83.00
Heat Rate (kcal/kWh)	2393
Auxiliary Energy Consumption (%)	5.75
Specific Oil Consumption (ml/ kWh)	0.50

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

### Normative Annual Plant Availability Factor (NAPAF)

83. 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.”*

84. The petitioner has considered the target availability norm of 83% during 2014-19. The petitioner has not submitted any justification for claiming PAF of 83%.

85. The Respondent No. 1 MPPMCL in its reply has submitted that the Regulation 36(A)(a) provides that in view of shortage of coal and uncertainty of assured coal supply on sustained basis experienced by generating stations, the NAPAF for recovery of fixed charges shall be 83% till the same is reviewed. The respondent submitted that there is no shortage of coal as may be observed from the cumulative availability of the plant for the last 4 years and the petitioner is taking undue advantage of the above relaxation of Regulation without any basis and therefore requested the Commission to revise the target availability to 85% on retrospective basis.

86. In response to this the petitioner has submitted that in order to mitigate the risk of recovery of fixed charges by the generators, the 2014 Tariff Regulations specify that in view of shortage of coal



and uncertainty of assured coal supply on sustained basis, the fixed charges will be recovered at availability of 83% which shall be reviewed by CERC after 3 years from 01.04.2014.

87. We have gone through the submissions of the petitioner and respondent. Plant Availability Factor of 83% is norms specified by the Commission for the period 2014-15 to 2016-17 for 3 years. For this no justification is required from the petitioner. Regarding PAF for the year 2017-18 and 2018-19, the same shall be 85%.

### **Heat Rate (kCal/kWh)**

88. 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”*

89. The design heat rate as submitted by the petitioner in Form-2 of the petition is 2393.05 kcal/kWh, on the basis of turbine cycle heat rate of 1944.44 kcal/ kWh and Boiler Efficiency of 84.91%. Accordingly, the Gross Station Heat Rate (GSHR) of the generating station for the period 2014-19 as considered by the petitioner is 2393.05 kCal/kWh ( $=1.045 \times 1944.44 / 0.8491$ ).

90. The Respondent No. 1, MPPMCL has submitted that in Regulation 36 (C) (a), GSHR of 2375 kCal/kWh have been prescribed for existing thermal generating station of 500 MW capacity. But the petitioner is claiming GSHR of 2393 kCal/kWh under Regulation 36 (C) (c) for its plant having COD between 1.4.2009 to 31.3.2014. With this analogy it appears that the efficiency of the generating plant is deteriorating with respect to the other plants commissioned prior to 1.4.2009. SOR of the 2009 and 2014 Tariff Regulations specifically states that the plant should have progressively



increasing efficiency level with respect to the timing of their commissioning and hence, in any case the plant having COD between 1.4.2009 to 31.3.2014 have to be more efficient than plant having COD prior to 1.4.2009. In view of above position, for plants falling under Regulation 36 (C) (b) & 36 (C) (c) the GSHR cannot be more than what has been prescribed in Regulation 36 (C) (a). This position is also supplemented by the sixth (6<sup>th</sup>) proviso to Regulation 36 (C) (b) (i). In view of above it has requested that GSHR of 2375 kCal/kWh may be considered for the purpose of tariff fixation as in any case the GSHR cannot be more than 2375 kCal/kWh in accordance with Regulation 36 (C) (a) (1) of Tariff Regulations, 2014 and the sixth (6<sup>th</sup>) proviso to Regulation 36 (C) (b) (i) giving a harmonious interpretation of both the provisions contained in Regulation.

91. In response to this the petitioner has submitted that as per the SOR for the 2014 Tariff Regulations, the Gross Station Heat rate norms as per Regulation 36(C)(a) for thermal generating units of various capacities have been fixed by the Commission based on five years performance data for the period 2008-09 to 2012-13 for those units. It indicates that the generating units existing before 1.4.2009 were considered for this purpose. The generating stations having COD on or after 1.4.2009 and before 1.4.2014 have been treated differently by the Commission under Regulation 36(C)(c)(i). Accordingly, the Gross Station Heat rate of 2393 Kcal/Kwh claimed by the Petitioner for the instant station for tariff period 2014-19 is correct and is as per the Regulation 36(C)(c)(i) of CERC Tariff Regulations 2014.

92. It has been observed that the petitioner has considered Gross Station Heat Rate (GSHR) of 2393.05 kCal/kWh ( $=1.045 \times 1944.44 / 0.8491$ ) for the period 2014-19 with Boiler Efficiency of 84.91% whereas the 2014 Tariff Regulations specifies for normative minimum boiler efficiency of 85.00%.

93. In view of above discussion, the design heat rate of 2390.52 kCal/kWh ( $=1.045 \times 1944.44 / 0.85$ ) during the period 2014-19 has been computed based on Turbine Cycle Heat Rate of 1944.44 Kcal/kWh and Boiler Efficiency of 85.00%, and also considering margin of 4.50% as specified in the 2014 Tariff Regulations.



### **Auxiliary Energy Consumption**

94. The petitioner has claimed Auxiliary Energy Consumption at 5.75% during period 2014-19. Regulation 36(E)(a)(ii) of 2014 Tariff Regulations, provides for the Auxiliary Energy Consumption of 5.75% for coal based generating stations of 500 MW sets with Induced Draft cooling tower and steam driven BFP. Hence, the Auxiliary Energy Consumption considered by the petitioner is as per norms and is allowed.

### **Specific Oil Consumption**

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

### **Interest on Working Capital**

96. 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 or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;*

*(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;*

*(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;*

*(iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;*

*(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and*



(vi) Operation and maintenance expenses for one month.”

### Fuel Components and Energy Charges in working capital

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

(₹ in lakh)						
Sl. No.		2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days (for peat head plants)	1311.79	1315.38	1311.79	1311.79	1311.79
1B	Cost of Coal for Generation for 30 days	2623.58	2630.76	2623.58	2623.58	2623.58
2	Cost of Main Secondary Fuel Oil for 2 months	131.95	132.31	131.95	131.95	131.95

98. The Respondent No. 1, MPPMCL has submitted that the petitioner has considered weighted average GCV of coal as fired which is a violation of the provisions contained in Regulation 30 (6) (b) of the 2014 Tariff Regulations which provides that weighted average gross calorific value of primary fuel on as received basis has to be considered. MPPMCL requested that the petitioner may be directed to furnish the information of GCV of primary fuel on as received basis and on failure of the petitioner to provide information regarding GCV of primary fuel as on received basis; GCV of primary fuel as billed by the coal company may be considered for calculation of energy charges rate. MPPMCL further submitted that in spite of the fact there is no stay in the writ petition filed by the petitioner before Hon'ble High Court of Delhi, they are, in complete violation of the provisions contained in the 2014 Tariff Regulations, charging ECR on as fired basis.

99. In response to this the petitioner in its affidavit dated 22.7.2016 has submitted that the 2014 Tariff Regulations envisage determination of Energy charges on the basis of fuel data for the months of Jan 2014, Feb 2014 & March 2014 and 'as received' GCV. The GCV for the period up to





March 2014 was being measured on 'as fired' basis as per the provisions of the 2009 Tariff Regulations as the infrastructure for measuring 'as Received' GCV at unloading end was not available. Accordingly the 'as received' GCV for Jan-Mar 2014 was not available while filing the instant Petition. Subsequent to coming into force of the 2014 Tariff Regulations, 'as received' GCV was initially measured by sampling of coal as received at the boiler. The petitioner submitted that from August 2014 onwards, sampling for measurement of 'as received' GCV is being taken from secondary crusher and based on the same, the weighted average GCV of coal as received is being taken for calculation of energy charges and the information regarding the same is also being served to all the beneficiaries.

100. The Commission vide ROP dated 28.6.2016 directed the petitioner to submit the GCV of coal on "as received" basis in response to which the petitioner vide affidavit dated 9.8.2016 has submitted that from Aug 2014, onwards sampling for measurement of 'as received' GCV is being taken from secondary crusher.

101. It is observed that 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 had directed that the Commission shall decide the place from where the sample of coal should be taken for measurement of GCV of coal on as received basis within 1 month on the request of petitioners.

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

*"58. In view of the above discussion, the issues referred by the Hon'ble High Court of Delhi are decided as under:*

*(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by taking samples after the crusher set up inside the generating station, in terms of Regulation 30(6) of the 2014 Tariff regulations.*

*(b) The samples for the purpose of measurement of coal on as received basis should be collected from the loaded wagons at the generating stations either manually or through the Hydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal is unloaded. While*



*collecting the samples, the safety of personnel and equipment as discussed in this order should be ensured. After collection of samples, the sample preparation and testing shall be carried out in the laboratory in accordance with the procedure prescribed in IS 436(Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC.”*

103. Further, the petitioner has claimed energy charge rate (ECR) of 94.195 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 from the loaded wagons though the petitioner was required to furnish such information with effect from 1.4.2014 in terms of the Regulation. In compliance to the direction of the Hon’ble High Court of Delhi, the Commission in its order dated 25.1.2016 in Petition No. 283/GT/2014 has clarified that the measurement of GCV of coal on as received basis shall be taken from the loaded wagons at the unloading point either manually or through the Hydraulic Augur. The petitioner has not submitted the required data regarding measurement of GCV of coal in compliance with the directions contained in the said order dated 25.1.2016. The present petition cannot be kept pending till the petitioner submits the required information. Hence, the Commission has decided to compute fuel components and the energy charges in the working capital have been computed by provisionally considering the GCV of coal on as “billed basis” and allowing an adjustment for total moisture as per the formula given as under:

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

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

104. In view of the above, the cost for fuel components in working capital have been computed at 83% for 2014-15, 2015-16 and 2016-17 and at 85% for 2017-18 and 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)

Sl. No.		2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days (for pit head plants)	971.56	971.56	971.56	994.97	994.97
1B	Cost of Coal for Generation for 30 days	1943.12	1943.12	1943.12	1989.94	1989.94
2	Cost of Main Secondary Fuel Oil for 2 months	131.95	132.31	131.95	135.13	135.13

105. 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 is worked out as under:-

Sl.No		Unit	2014-19
1	Capacity	MW	500.00
2	Gross Station Heat Rate	kCal/kWh	2390.52
3	Aux. Energy Consumption	%	5.75%
4	Weighted average GCV of oil (As fired)	kCal/lit.	10111.80
5	Weighted average GCV of Coal (As Billed)	kCal/kg	4150.00
6	Adjustment on account of coal received at the generating station for equilibrated basis (Air dried) in the billed GCV Of Coal India		*
7	Weighted average price of oil	Rs./KL	43555.96
8	Weighted average price of Coal	Rs./MT	1131.53
9	<b>Rate of energy charge ex-bus</b>	<b>₹/kWh</b>	<b>0.672**</b>

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

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

106. 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.



## Maintenance spares

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

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1938.40	2060.89	2190.74	2329.05	2475.89

108. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the operation & maintenance expenses as specified in Regulation 29. In terms of Regulation 29 (2) of the 2014 Tariff Regulations, the maintenance spares @ 20 % of the operation & maintenance expenses including water charges, allowed are as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1778.44	1869.34	1965.64	2068.24	2177.14

## Receivables

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

<i>(₹ in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges (two months)	3838.02	3848.54	3838.02	3930.51	3930.51
Fixed Charges (two months)	8573.23	8505.30	8421.54	8300.36	8152.81
<b>Total</b>	<b>12411.25</b>	<b>12353.84</b>	<b>12259.57</b>	<b>12230.86</b>	<b>12083.31</b>

## O&M Expenses

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

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
807.67	858.70	912.81	970.44	1031.62



111. The respondent No. 1 MPPMCL in its reply has submitted that the O&M expenses claimed by the petitioner is inclusive of water charges which is grossly against the provision of Regulation 29(2) of the 2014 Tariff Regulations. The respondent submitted that the water charges are not part of O&M expenses and has to be recovered separately and also it cannot be added to O&M expenses for recovery of interest on working capital. The petitioner is misinterpreting the provision of Regulation to gain advantage of escalated O&M expenses in working capital calculation.

112. In response to this, the petitioner in rejoinder dated 22.7.2016 has submitted that the Commission fixed the normative O&M expenses for the thermal generating station for the tariff period 2014-19 by considering both; the controllable items and uncontrollable items of O&M expenditure and the same has been specified under Regulation 29(1) of the 2014 Tariff Regulations. The petitioner further submitted that for the expenses made towards the water charges which are determined by the state agencies and over which generator has no direct control (uncontrollable items), the same are to be allowed under Regulation 29(2) of the 2014 Tariff Regulations. The petitioner also submitted that in view of the above, the O&M expenditure (a part of annual fixed charges) recoverable from the beneficiaries consists of normative O&M expenses and the water charges as paid for the instant station for the corresponding year. The petitioner submitted that the respondent has misinterpreted the relevant Regulation.

113. We are of the view that the water charges shall be recovered separately apart from the normative O&M expenses under the head of O&M expenses however; the same shall be considered for recovery of interest on working capital. However, the petitioner is directed to furnish the details such as the contracted quantity, allocation of water, the actual water consumed during 2014-19, the basis of calculation of quantity of water and computation of water charges at the time of truing-up of tariff in terms of the 2014 Tariff Regulations separately for Korba Stage III (1X500MW). In addition,



the petitioner shall also confirm / clarify as to whether the water charges have been paid on the basis of contracted quantity or on the basis of allocation.

114. Based on the above, the O&M expenses along with water charges for 1 month is allowed as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
741.02	778.89	819.02	861.77	907.14

### Rate of interest on working capital

115. 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.”*

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

(₹ in lakh)					
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal towards stock- 15 days	971.56	971.56	971.56	994.97	994.97
Cost of coal towards generation- 30 days	1943.12	1943.12	1943.12	1989.94	1989.94
Cost of secondary fuel oil- 2 months	131.95	132.31	131.95	135.13	135.13
O & M expenses- 1 Month	741.02	778.89	819.02	861.77	907.14
Maintenance Spares	1778.44	1869.34	1965.64	2068.24	2177.14
Receivables- 2 months	12411.25	12353.84	12259.57	12230.86	12083.31
<b>Total Working Capital</b>	<b>17977.35</b>	<b>18049.07</b>	<b>18090.86</b>	<b>18280.92</b>	<b>18287.65</b>
Rate of Interest (%)	13.50%	13.50%	13.50%	13.50%	13.50%
<b>Interest on Working Capital</b>	<b>2426.94</b>	<b>2436.62</b>	<b>2442.27</b>	<b>2467.92</b>	<b>2468.83</b>

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



(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	12964.41	13047.06	13113.55	13126.48	13126.48
Interest on Loan	12853.27	11735.13	10603.01	9309.52	7878.82
Return on Equity	14302.54	14466.26	14542.22	14557.00	14557.00
Interest on Working Capital	2426.94	2436.62	2442.27	2467.92	2468.83
O&M Expenses	8892.21	9346.71	9828.21	10341.21	10885.71
<b>Total</b>	<b>51439.37</b>	<b>51031.79</b>	<b>50529.26</b>	<b>49802.14</b>	<b>48916.85</b>

### Month to Month Energy Charges

118. 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*

$$ECR = \{(GHR - SFC \times CVSF) \times LPPF / CVPF + SFC \times LPSFi + LC \times LPL\} \times 100 / (100 - AUX)$$

*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*

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

### Application Fee and Publication Expenses

120. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited the filing fees for the period 2014-15 in terms of the provisions of the Central Electricity



Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover *pro rata*, the filing fees and the expenses incurred on publication of notices for the period 2014-15 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.

95. The annual fixed charges approved for the period 2014-19 as above are subject to true-up in terms of Regulation 8 of the 2014 Tariff Regulations.

96. Petition No. 340/GT/2014 is disposed of in terms of the above.

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

Sd/-  
**(A. S. Bakshi)**  
Member

Sd/-  
**(A. K. Singhal)**  
Member

Sd/-  
**(Gireesh B. Pradhan)**  
Chairperson





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

(₹ in lakh)

Particulars	Interest Rate (%)					Loan deployed as on 1.4.2014	Additions during the tariff period	Total
	2014-15	2015-16	2016-17	2017-18	2018-19			
Euro Bonds-II	7.6214	7.6214	7.6214	7.6214	7.6214	9131.91	0.00	9131.91
State Bank of India-V consolidated	11.0000	11.0000	11.0000	11.0000	11.0000	8500.00	0.00	8500.00
Central Bank of India II	7.0000	7.0000	7.0000	7.0000	7.0000	1000.00	0.00	1000.00
IDFC I	10.0100	10.0100	10.0100	10.0100	10.0100	10000.00	0.00	10000.00
LIC V	11.0000	11.0000	11.0000	11.0000	11.0000	10000.00	0.00	10000.00
LIC IV	9.7700	9.7700	9.7700	9.7700	9.7700	7000.00	0.00	7000.00
LIC III T2 D5	8.2771	8.2771	8.2771	8.2771	8.2771	2000.00	0.00	2000.00
Oriental Bank of Commerce	10.2500	10.2500	10.2500	10.2500	10.2500	2000.00	0.00	2000.00
PFC V	9.6096	9.6096	9.6096	9.6096	9.6096	49900.00	0.00	49900.00
Punjab National Bank II	10.5000	10.5000	10.5000	10.5000	10.5000	5000.00	0.00	5000.00
Allahabad Bank II	7.0000	7.0000	7.0000	7.0000	7.0000	2500.00	0.00	2500.00
Bank of Maharashtra III	10.5000	10.5000	10.5000	10.5000	10.5000	500.00	0.00	500.00
Corporation Bank II	7.2000	7.2000	7.2000	7.2000	7.2000	3000.00	0.00	3000.00
State bank of India IV	11.0000	11.0000	11.0000	11.0000	11.0000	13300.00	0.00	13300.00
State Bank of India-VI Consolidated	11.0000	11.0000	11.0000	11.0000	11.0000	3500.00	0.00	3500.00
HDFC II T-1 D1&D3	10.4400	10.4400	10.4400	10.4400	10.4400	4000.00	0.00	4000.00
VIJYA Bank IV	10.2000	10.2000	10.2000	10.2000	10.2000	3000.00	0.00	3000.00
Bonds XXII Series	8.2071	8.2071	8.2071	8.2071	8.2071	1000.00	0.00	1000.00
Bonds XXIII Series	8.4096	8.4096	8.4096	8.4096	8.4096	1200.00	0.00	1200.00
Bonds XXV Series	9.4000	9.4000	9.4000	9.4000	9.4000	5000.00	0.00	5000.00
Bonds XXVI Series	9.0900	9.0900	9.0900	9.0900	9.0900	7500.00	0.00	7500.00
Bonds XXVIII Series	11.0300	11.0300	11.0300	11.0300	11.0300	12500.00	0.00	12500.00
Bonds XXX Series	7.9200	7.9200	7.9200	7.9200	7.9200	5000.00	0.00	5000.00
Bonds XXXI Series	8.8100	8.8100	8.8100	8.8100	8.8100	2500.00	0.00	2500.00
Bonds XXXIII Series	8.7600	8.7600	8.7600	8.7600	8.7600	7500.00	0.00	7500.00
Bonds XXXV Series	8.8150	8.8150	8.8150	8.8150	8.8150	1000.00	0.00	1000.00
Bank of Maharashtra IV	10.2500	10.2500	10.2500	10.2500	10.2500	5000.00	0.00	5000.00
XXXVIII 9.17% BONDS	9.2000	9.2000	9.2000	9.2000	9.2000	1500.00	0.00	1500.00
<b>Total</b>						<b>184031.91</b>	<b>0.00</b>	<b>184031.91</b>



**WEIGHTED AVERAGE RATE OF INTEREST ON LOAN DURING 2014-19 TARIFF PERIOD**

(₹ in lakh)

<b>Particulars</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Gross loan - Opening	184031.91	184031.91	184031.91	184031.91	184031.91
Cumulative repayments of Loans upto previous year	39828.75	56745.30	82394.47	96297.44	109683.27
Net loan – Opening	144203.16	127286.61	101637.44	87734.46	74348.63
Increase/ Decrease due to FERV	0.00	0.00	0.00	0.00	0.00
Increase/ Decrease due to ACE	0.00	0.00	0.00	0.00	0.00
Total	144196.73	127286.61	101637.44	87734.46	74348.63
Less: Repayment (s) of Loans during the year	16910.12	25649.17	13902.97	13385.83	24203.33
Net loan - Closing	127286.61	101637.44	87734.46	74348.63	50145.30
Average Net Loan	135741.67	114462.02	94685.95	81041.55	62246.96
<b>Rate of Interest on Loan</b>	9.5688%	9.5846%	9.6166%	9.5667%	9.3589%
Interest on loan Annualised	12988.80	10970.68	9105.60	7752.98	5825.62

